REPORT

of the

MINUTES OF THE MEETING OF THE NORTH CENTRAL CORN BREEDING RESEARCH COMMITTEE (NCR-2)

Chicago, Illinois
February 26-27, 1975

Reported by
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NORTH CENTRAL CORN BREEDING RESEARCH COMMITTEE
(NCR-2)

February 26, 1975

The annual meetings of the North Central Corn Breeding Research Committee was called to order at 8:35 a.m. by Chairman W. A. Compton of the University of Nebraska. By majority vote at the 1974 meetings, an invitation was extended to corn breeders in the industry to attend the 1975 meeting. Chairman Compton had contacted Louis M. Camp to make arrangements to invite 40 members from the corn industry. Interest and response was good because 37 individuals from 22 firms attended the meetings. After some preliminary remarks on how the meeting was to be conducted, Chairman Compton asked for brief reports from representatives of the states in the North Central Region. The reports were primarily to relate information on any special disease, insects, or climatic conditions that occurred in 1974. Weather, of course, was the primary topic for 1974. The weather generally was too wet for planting, too hot and dry during July, and too cool in August and September with frosts occurring September 2 in the northern regions. Brief state reports for 1974 are as follows:

Iowa: Nearly ideal planting conditions were experienced in Iowa until May 7. From May 7 to about June 1, very little corn was planted in Iowa. Planting at the Iowa station started April 22 and continued uninterrupted until May 6. Nine of the 10 test sites were planted by May 7 but the 10th site was not planted until May 31 and June 1. Rainfall during the growing season (May-August) exceeded normal (21.5 vs 16.6 inches), but the distribution usually was either above or below normal for each week during the season. From June 22 to July 27, we had very hot, dry conditions. Only 1.7 inches of rainfall occurred at Ames in July and 0.9 occurred the last 3 days of July. Temperatures averaged 4.2° above normal in July but were below normal for May (-2.1°), June (-1.5°), August (-3.8°), and September (-3.7°).

Annual fall corn borer survey in Iowa showed one of the lowest corn borer infestations since the survey was initiated. Since 1971 there has been a rapid decline in percent plants infected and number of borers per 100 plants in Iowa. The state average for the past four years is:

	1971	1972	1973	1974
% plants infected	81	49	52	21
No. borers/100 plants	321	54	84	23

Disease monitoring plots including 18 entries replicated twice were grown at eight sites in Iowa. The 18 entries included hybrids susceptible to yellow leaf blight, southern corn leaf blight, maize dwarf mosaic, northern corn leaf blight, Stewart's wilt, stalk rot, ear rot, Goss's freckles, downy mildew, H. setarie, and first and second brood corn borer. Observations in June and July did not show presence for any of the diseases and corn borer. The disease plots located at Ames did not show any evidence of leaf diseases and corn borer throughout the season.

Two inbred lines (B75 and B79) will be released from the Iowa Station and made available to commercial seedsmen in 1975. In addition four breeding populations (BS13, BSSS(R)C7, BSCB1(R)C7, BSAA$\underline{o_2}$(S)C1) will be released as sources of germ plasm for breeding programs. - A. R. Hallauer

Illinois: The growing season for the 1974 Illinois corn crop was one of the shortest on record. A cool, wet spring delayed planting and an early September frost contributed to much lower grain yields throughout the state than the previous five years. The predicted average grain yield for Illinois in 1974 was 82 bu/A, down about 18 to 20 percent from 1973.

The corn disease problem was similar to previous years, except for the occurrence of Sorghum Downy Mildew in the bottom-land near the Ohio River in Gallatin County, Illinois. This problem is being investigated by Dr. A. L. Hooker. Stewart's Bacterial Wilt and Leaf Blight were the most prevalent diseases throughout Illinois in 1974. The occurrence of Maize Dwarf Mosaic and Maize Chlorotic Dwarf increased some in Southern Illinois. Also, Anthracnose was prevalent in East Central Illinois; however, no great depression in grain yields could be observed. - R. J. Lambert

Indiana: Feeding trials of brown midrib, adjusted for grain showed a 10% gain for brown midrib silage. Some backcross recoveries of brown midrib showed less vigor than normals whereas some others were good for vigor. A short-plant mutant has been identified in inbred, B37. A line having upright leaves controlled by several genes is being put in several standard lines, but do not have any hybrid evaluations completed at this time. Two opaque-2 synthetics adapted mainly for temperate areas of the world are available. H98 has looked good in tests, H99 has been good with A632 in northern Indiana, but not at Lafayette, and H100 seems more promising than H98 and H99, but not tested extensively. Crane is screening collections from World Bank for high protein in normal appearing kernel using ninhydrin test. - L. F. Bauman

Kansas: Serious losses of corn occurred in south central Kansas during the 1974 growing season due to girdling of corn stalks by larvae of the southwestern corn borer beginning in September; later, girdled stalks fell to the ground away from the reach of harvesting equipment. Large numbers of insects will over-winter in the root systems of the girdled plants and will provide the source population for the 1975 crop.

Discing and chiseling of stubble to expose stalks and root systems to winter has been very effective in reducing overwintering larvae. 100% kill has been observed.

Harvest time is critical - Early planting of early maturing hybrids should ensure harvest before extensive girdling has occurred and should effectively reduce losses. Some increase in population may help to maintain yield levels under irrigation. Early harvest of late maturing hybrids with high moisture levels could result in aflatoxin development if corn is not dried and stored properly. This problem could be more serious than losses due to southwestern corn borer.

The development of genetic resistance is underway by means of a cooperative program with ARS researchers at Mississippi State. Genetic resistance to southwestern corn borer is complex and at this time no high levels of resistance are available. Several years will be required to develop materials. - C. E. Wassom

Kentucky: Kentucky experienced a good corn growing year relative to surrounding states. We recorded an 85 bu/A average, that is only one bu/A lower than the highest state average ever reported. We found the normal compliment of corn diseases although none was extremely serious. Sorghum Downy Mildew was found in several new locations. Anthracnose was diagnosed as causing some severe late season leaf injury on some popular hybrids. Bacterial blight (Stewart's disease) was widespread but apparently caused little economic damage. Gray leaf spot was reported in isolated areas in the eastern part of the state while MDMV and MCDV were found in most areas of the state as they have been for the past several years. The major insect pest, southwestern corn borer, continued its spread from west to east and caused some severe lodging to late planted corn. The SW borer problem is becoming more severe but early planting is a useful control measure. - C. G. Poneleit

Minnesota: Minnesota's 1974 corn crop yielded an estimated 63 bu/A, down from 93 bu/A in 1972 and 1973. Of the several unfavorable weather factors in 1974, perhaps the most striking was the abnormally early fall frost. Subfreezing temperatures occurred in Minnesota on September 1-2 and again on September 21-22. Much of the state's corn crop suffered at least some damage from the September 1-2 frost, with heaviest damage occurring in central and east-central Minnesota. The September 21-22 frost was statewide and damaged nearly all plants which had escaped the earlier frost.

The early frost stimulated much speculation on the rate of corn grain moisture loss under field conditions following subfreezing temperatures. In a study performed at St. Paul, MN, with one hybrid at an initial grain moisture of approximately 45%, detached ears were held at -6.7°C (20°F) for 4 or 8 hours and then reattached with tape to plants in the field. Weather conditions during the five weeks following treatment (September 19 - October 24) favored rapid drying, and grain on untreated ears dried from approximately 45% to 20% at a linear rate of 0.7% per day.

Both detachment of ears *per se* and freezing caused a delay in drying during the first week following treatment. From September 27 to October 24, rates of moisture loss of grain from frozen ears was no slower than that from unfrozen, detached ears or from normal undetached ears. Grain from frozen ears reached 25% moisture approximately 4 to 6 days later than that from either unfrozen, detached ears or normal ears under conditions favorable for natural drying. - J. L. Geadelmann

Missouri: Downy mildew found in Missouri in 1973 and in areas where shattercane had been grown. It is unknown if downy mildew was in Missouri in 1974. Downy mildew resistance studies are being conducted having the following objective:

To identify corn strains with high levels of resistance to downy mildew (Sclerospora sorghi) and compare systemic responses as a result of infection with conidia spore suspension with natural field infection probably due to oospores.

Cooperators: Drs. Craig and Frederickson, Texas A&M University; and Dr. Chris G. Schmitt ARS-USDA, Frederick, Maryland; and M. S. Zuber, USDA-ARS University of Missouri, Columbia.

Fifty-eight strains of corn were rated for downy mildew under natural field infection at Berclair, Texas. The same 58 strains were inoculated with a conidia spore suspension of two dosage levels consisting of 50,000 and 20,000+ spores per ml.

At the Texas location, two replications of plots with 20 plants each for a perfect stand were rated for persence of downy mildew. The results are given in the percent of plants showing the disease. At Frederick, Maryland, seedling plants at about the third to fifth leaf stage were inoculated with 1/2 ml/plt with the two dosage levels (Table 1).

Of special interest was the comparative responses between the conidia inoculation and field infection. The r value between the 200,000+/ml dosage and field infection was a highly significant 0.68 and between 50,000/ml and field infection was also highly significant but lower with 0.49. The correlation between systemics from 50,000/ml and 200,000+/ml was 0.58. Inbred lines R177, 33-16 and B75 had high levels of resistance as well as the single cross B75 x W117.

We conclude that the conidia spore suspension method appears to be suitable for screening strains under greenhouse conditions. Thus eliminating the element of non-uniform levels of infection often encountered under field conditions.

Over the years Stewart's bacterial wilt (Erwinia stewartii) has been a devasting disease to both sweet and field corn. In the early 1900's sweet corn losses frequently reached 20-40%. These losses have been greatly reduced by the development of more resistant varieties. In general, field corn appears to have more resistance than sweet corn but over the years, large yield losses have been reported. Large yield reductions were reported in Illinois in 1938 and 1953 and in Kentucky in 1958. During the past 3 years Stewart's wilt has been the most important leaf blight disease in the southern part of the Corn Belt and the midsouth. Yield losses due to Stewart's wilt are difficult to estimate but many corn workers are convinced that stalk lodging has been greatly enchanced by the presence of this disease. Yield losses in seed fields would probably have been higher than for hybrids since most female parents are inbred lines that lack vigor.

The bacterium is transmitted by the corn flea beetle which overwinters as the adult stage. After emerging from hibernation, beetles feed on young corn and inoculate the bacterium which has overwintered in association with its vector. Both the larval stage and adult form of the southern corn rootworm have been shown to spread Stewart's wilt in the field but they are not as efficient vectors as the flea beetle.

The upsurge of Stewart's wilt during the past 3 years could be related to: (1) change in the biotype of the vector whereby they can endure colder winters; (2) change in the host population where greater acreages of more susceptible genotypes are being grown; (3) environmental factors more favorable for overwintering of the vector (i.e., warmer winter temperatures), and/or summer environmental conditions being more conducive to rapid dissemination and population build-up; and (4) an increase in virulence of the bacterium. These are areas that need further researching.

Large differences in resistance to Stewart's wilt have been observed among corn genotypes. During the past decade selection of resistance has been difficult since the frequency of an epiphytotic from year to year has been inconsistent. Only during the past 3 years has the level of infection been high enough to identify resistant strains.

Although inoculation techniques have been developed, the question arises whether disease ratings from seedling inoculations would agree with mature plant infection by either artificial or vector inoculation. According to the literature more vigorous plants were generally more resistant than less vigorous. Flint corn is more susceptible than dent corn. Early corn is more susceptible than late. Three types of resistance have been recognized: (1) vigor correlated, as measured by height; (2) lateness correlated; and (3) true resistance. Studies by Wellhausen showed that resistance was dominant and in a few cases the F_1 was more resistant than either parent. Results from backcrosses and late-generation progenies indicated two major dominant complementary genes with a third major modifying gene, were involved in wilt resistance.

Elliott reported that dent-corn inbred lines, resistant to the leaf blight phase, were more susceptible in later stages of growth. She emphasized the importance of later inoculations to obtain a more accurate estimate of "true" leaf-blight resistance.

Resistance to Stewart's have been suggested to be correlated with resistance to _Helminthosporium turcicum_. Several researchers support this suggestion.

Stewart's wilt outbreaks have been forcasted on mean winter temperatures preceding the growing season. If the winter index temperature for the 3 consecutive months of December, January, and February is below 30°F, disease severity is reduced due to a lower vector population. Temperatures exceeding 100°F for the 3 months is usually followed by high vector populations and greater disease severity the following growing season. However, other factors in addition to temperature may be involved in the severity of an outbreak. - M. S. Zuber

Nebraska: Final estimated yields were 103 bushels/A for irrigated corn, 26 bushels/A for non-irrigated acres, and an overall average yield of 68 bushels/A. Many of the dryland acres were cut for silage or abandoned.

The 1974 drouth in Nebraska has been compared with the terrible drouths of the early and middle 30's. July temperatures averaged 3 to 5 degrees above normal at different stations around the state. With the combination of drouth and heat, many hybrids that had performed well in the past failed completely or performed poorly in 1974. In our nursery we found many lines that refused to shed pollen. On the other hand, we were encouraged with other lines because of their ability to take the heat.

Pollination problems seemed to come from:

1) Failure of plants to shed viable pollen or pollen died before successful fertilization took place,

2) Silks emerged but died before successful fertilization,

3) Silks failed to emerge,

4) Silks emerged too late to match up with viable pollen shed.

Frosts occurred over much of Nebraska on September 3 and September 13. However, many Nebraska seed growers were fortunate enough to escape frost damage. However, much dryland seed production failed. Most of the harvested seed seems to be O.K., but there isn't a lot of it.

Nebraska didn't have many severe disease problems in 1974. There was little stalk rot because of the lack of proper timing of stress periods which would predispose the plants to stalk rot. There was very little leaf blight - probably because of the low humidity. The most serious disease was Common Smut, which was favored by the high temperatures and dry weather. Leaf Freckles and Wilt was generally not severe but a few reports of severely infected fields under center pivot irrigation systems were reported.

Insect problems were also not very severe in 1974 in Nebraska. Mite problems are increasing in south-central and central areas. These leaf suckers may reduce yields and, by reducing vigor, also may increase stalk rot. Corn rootworm problems have also been increasing the last 2 or 3 years. Corn borer hasn't been too bad, perhaps because of the cool June nights. Daytime cool temperatures don't seem to affect egg laying too much but night temperatures apparently do. Hot-dry, windy weather may also cause eggs to drop off. These conditions seemed to help keep corn borers down in 1974.

Note that selection studies have shown that response to selection shows up greater when measured in good environments, though increases can be shown in poor environments as well. However, it might be expected that future improvements in yield will show up best in good years, in good areas of the country, and under good water and fertility conditions. Therefore, greater fluctuations will likely take place from year to year and thus grain reserves will become more and more necessary. - W. A. Compton

North Dakota: Many problems occurred in 1974, but most of these were weather related. Many of the eastern counties had excessive spring moisture which delayed planting so that much corn was not planted until June. Once the soil stored moisture was used, moisture stress conditions prevailed in many areas. This stress was aggravated by abnormally high July temperatures. Rains in July relieved the drought in the eastern part of the state, but cool temperatures in August did not allow the corn to mature as fast as normal.

A frost on September 2 severely damaged much of the corn in the southeastern part of North Dakota. Much of the late planted corn was immature at frost. This produced low yields, low test weights and high moisture at harvest. Incidence of ear rots also was higher than normal this year.

The North Dakota station is releasing two new inbreds this spring. ND240 and ND241. ND240 was tested as ND71-42 and ND241 as ND71-49. These inbreds were among the earliest of the 35 inbreds in the 100-300 maturity 3-way hybrid tests in 1974. Under North Dakota conditions, they have exhibited good GCA effects for yield, ear moisture at harvest and other ear characteristics. - H. Z. Cross

Ohio: Corn production problems in Ohio in 1974 were mainly due to dry conditions in midsummer and early frost in the fall. As of May 28 corn planting was over 90 percent complete, nearly 2 weeks ahead of normal for the state. The Northwestern area was hit hardest by drought. At the Northwestern Branch located near Hoytville only 0.3 inches of rainfall was recorded between June 24 and August 2, 1974. A lower than average accumulation of growing degree days and early frost throughout most of Ohio prevented some hybrids from reaching physiological maturity. Fall weather was generally favorable for harvest but the grain "dry down" rate was noticeably slow.

Leaf diseases on corn, excepting Stewart's wilt, were minimal in Ohio in 1974, due undoubtedly to the dry summer. Stewart's wilt was widespread and severely damaged or killed many plants in susceptible inbred lines and hybrids. Maize dwarf mosaic and maize chlorotic dwarf viruses were prevalent in the river and stream valleys in the southern third of the state. At Portsmouth, strain B of MDMV appeared to have been more prevalent, beginning about mid-July, than in previous years. Virus tolerant hybrids in general are late maturing and this year delayed harvest resulted in considerable lodging.

European corn borer, and in no-till corn slugs and armyworm were continuing problems. Flea beetle populations were very high in 1974. Western corn rootworm was found in four counties in northwestern Ohio.

In general, because of a mild winter, we expect a large population of flea beetles, and so expect problems from Stewart's bacterila wilt in 1975. - W. R. Findley and E. J. Dollinger

Ontario: Cool, wet year with only 2395 heat units compared with usual 2500 heat units. An early frost occurred on September 22 and apparently stalks and shanks were frozen completely because no translocation of photosynthate after first frost. Differences were found among hybrids for rate of moisture decrease.

There was some evidence of differences in pericarp thickness for fast drying (15-16% for 6-week period) and slow drying (4-5% for 6-week period) hybrids; fast drying hybrids had the thinnest pericarp. There were some problems from rootworms and the quality of seed corn for areas of 2900 heat units will be less than desirable. - L. W. Kannenberg

Pennsylvania: We started with an excellent season as ideal planting conditions from April 15 to May 15, but were short of heat units and had problems if planted late or had late hybrids. In southeast and east central we had good conditions except for late planting following barley, which was hit by an early frost. There was a high incidence of Stewart's wilt; some grew out of injury, but susceptible material was hurt. There were no reports of Kabatiella, Phyllostica, and viruses except on some late planted sweet corn. No knowledge of anthracnose or gray leaf spot damage occurring in 1974. - M. W. Johnson

Wisconsin: A combination of a cool, wet spring and early frost resulted in little information being obtained in 1974. No serious insect or disease problems reported. - J. H. Lonnquist

Virginia: Gray leaf spot has been around for several years, but it was not a serious problem until no-till corn when it hit hard in 1972. We screened 650 lines in 1974, and 30 lines were quite resistant. It was dry and cool and disease was late coming in as seems to be related to physiological maturity. Late lines showed symptoms of gray leaf spot later, but most showed resistance. It is planned to release four populations and 3 to 4 inbred lines in 1975. - C. F. Genter

Evaluation of maize inbreds for cold-tolerance

J. J. Mock

We planted 49 maize inbred lines, collected from various experiment stations in the United States and Canada, at Ames, Iowa on April 6, 1974 and at Algona, Iowa on April 10, 1974. At both locations, inbreds were evaluated for three cold-tolerance traits: percentage emergence (recorded 30 days after planting), emergence index, and seedling dry weight (10 plants sampled 42 days after planting, dried to constant moisture, and weighed). Emergence index was calculated from the following formula, using plant counts taken every 2 days for 30 days after planting.

$$\text{Emergence index} = \frac{\text{(number plants emerged)(number days after planting)}}{\text{number plant emerged at 30 days}}$$

This index estimates the number of days required for emergence of the majority of the plants for a line that actually emerged. Lines were subsequently ranked for their cold-tolerance reactions by a summation of rankings for each of the three traits (cold-tolerance rank summation). Data in the following table illustrate the cold-tolerance responses for the 49 lines and are means of the Ames and Algona data. The experiment will be repeated in 1975.

Table 1. Cold-tolerance rank summation, percentage emergence, emergence index, and seedling dry weight for 49 maize inbreds planted April 6 at Ames, Iowa, and April 10, at Algona, Iowa.

Inbred		Cold-tolerance rank summation	Percentage emergence	Emergence index (days)	Seedling dry weight (dg)
Mo7	(Mo)	9	88.4	21.2	1.4
NYN22	(N.Y.)	11	86.2	20.9	1.1
Pa70	(Pa)	11	85.4	20.7	1.0
B73	(Ia)	12	80.9	20.8	1.2
MS142	(Mich)	19	75.9	20.7	1.1
E2891-1	(Ind)	21	78.1	21.5	1.1
Pa351	(Pa)	21	78.0	21.1	0.9
Mp1	(Miss)	23	79.0	21.5	0.8
H98	(Ind)	23	77.2	21.4	1.1
CG6	(Guelph)	23	75.0	20.9	1.0
Oh40B	(Ohio)	23	73.4	21.4	1.5
N132	(Nebr)	24	79.2	22.0	1.1
NY693	(N.Y.)	27	72.3	21.1	1.0
N159	(Nebr)	28	74.3	21.7	1.2
MS93	(Mich)	29	77.2	21.7	0.8
Va35	(Va)	30	77.5	22.3	1.2
Ky13	(Ky)	30	68.3	21.2	1.2
Ky30A	(Ky)	31	67.9	21.4	1.3
MS141	(Mich)	33	72.0	21.7	1.0
A340	(Minn)	33	67.7	21.5	1.3
(V3 x B14[1])-2	(Ia)	33	63.4	20.2	1.2
F6	(Fla)	34	82.1	23.2	0.9
K731	(Kan)	38	67.0	21.6	1.1
NY16(NY)	(N.Y.)	42	65.5	21.6	0.9
Mo13	(Mo)	44	71.3	22.4	0.8
N160	(Nebr)	44	67.9	22.2	0.8
Pa762	(Pa)	44	67.9	22.2	0.8
Oh43	(Ohio)	45	63.2	21.9	1.2
Oh26	(Ohio)	45	62.0	21.6	1.2
K148	(Kan)	46	61.9	21.4	1.0
CG10	(Guelph)	48	42.1	20.7	0.8
Mo15W	(Mo)	50	67.1	22.7	0.8
L317	(Ia)	53	71.4	24.0	0.7
Pa405	(Pa)	53	66.7	23.4	1.2
A334	(Minn)	54	62.4	22.2	0.7
Mo17	(Mo)	55	61.5	22.2	1.0
B57	(Ia)	57	45.0	21.8	1.1
Mp462	(Miss)	58	53.8	22.4	1.2
MS1334	(Mich)	59	61.0	22.3	0.9
Va28	(Va)	61	64.7	23.8	0.7
Mp317	(Miss)	63	62.1	23.0	0.6
A502	(Minn)	66	61.1	22.9	0.6
Oh51	(Ohio)	66	48.0	22.5	0.7
WF9	(Ia)	67	42.7	22.4	0.9
N139	(Nebr)	69	47.9	22.8	0.7
K41	(Kan)	69	18.3	22.1	0.6
ND203	(N.D.)	72	44.1	22.7	0.5
Mp305	(Miss)	79	31.8	23.2	0.4
K201G	(Kan)	82	3.5	23.2	0.0

Useful Applications of B-A Translocations in Corn

J. B. Beckett

By inducing reciprocal translocations between members of the basic set of chromosomes and a supernumerary (B) chromosome, workers have produced B-A translocations on 14 of the 20 chromosome arms of corn. By combining pre-existing B-A translocations with appropriate reciprocal translocations between members of the basic set, other workers have developed B-A translocations on three more arms. It is anticipated that B-A translocations will be produced on the last three chromosome arms in the near future. It is thus an appropriate time to consider some of the benefits of using these translocations as research tools.

B chromosomes behave normally, or nearly so, at all divisions except the second division of the developing pollen grain, at which time the B chromosome divides but both chromosomes usually proceed to one pole instead of one to each pole. When a portion of an A chromosome is translocated to the centric portion of the B, nondisjunction of the B centromere (and its attached A chromatin) still occurs at the second pollen division. Thus, pollen grains are formed with one hyperploid sperm (carrying two A chromosome arms) and one hypoploid sperm lacking that chromosome arm. Since the vegetative nuclei of such pollen grains are of balanced constitution, these pollen grains are still functional.

Since the two sperms are unlike, the products of fertilization are also unlike, giving either a hyperploid endosperm and a hypoploid embryo or the reciprocal. This ability of B-A translocations to transmit both hyperploid and hypoploid gametes through the pollen makes possible a remarkable variety of analyses. Some of these are listed below:

1. Locating recessive endosperm and plant traits to the proper chromosome arm in the F_1 generation.
2. Studying the effects of varying gene dosage. Hypomorphs should often be distinguishable from amorphs by this means.
3. Producing plants with three or more alleles at a locus (e.g., a locus affecting disease reaction) to study interactions.
4. Transferring intact chromosome arms from any source into lines carrying B-A translocations.
5. Studying the genetic contribution of each chromosome arm by observing the effect on numerous traits with different dosages of chromosome arms. Almost any measurable trait could be studied, even if mutants affecting the trait have never been found.
6. When specific chromosome arms are found to influence particular traits, B-A translocations can be used with mutagenic agents to produce mutations on the same

chromosome arms in the M_1. Some of these should be mutants at the loci causing the effects previously identified.

7. Comparing the effects of individual chromosome arms of different inbreds or varieties.
8. When two or more B-A translocations on a single chromosome arm are available, the effect of portions of chromosome arms can be studied.
9. Readily maintaining recessive lethal genes and deleterious dominants in "tertiary trisomic" derivatives.
10. In some cases, progenies uniformly heterozygous or homozygous for recessive lethal genes can be produced easily for biochemical studies, etc.
11. By using hypoploids and their progenies, it is possible to render one gene (or chromosome arm) from one parent homozygous and study other genes affecting a particular trait.
12. By appropriate crosses involving B-A translocations, it should be possible to identify particular chromosome arms that contribute more than average hybrid vigor, disease resistance, lodging resistance, etc. These arms could then be combined to give lines producing superior hybrids.
13. By using two B-A translocations at a time, it should

be possible to assess the degree of homology of two chromosome arms by producing plants hypoploid for both.

14. Trisomic derivatives may be useful for producing male-sterile populations for use in hybrid seed production.

The B-A translocation set now available constitutes a powerful tool to attack a wide variety of biochemical, physiological, genetic, pathological and agronomic problems.

PERFORMANCE EXPECTED FROM LOWER GERMINATING SEED

Wayne L. Fowler

Unfavorable weather conditions of 1974 reduced hybrid corn seed production well below goals, resulting in less than desirable total supply. Winter production efforts and imports are only partial help. In addition, a small part (maybe 10-12%) of the total supply germinates less than normal due to premature freezing. Producers are not all in the same situation on either supply or quality.

About 10% of the seed my company is offering for 1975 planting germinates less than 88%. All bags containing seed germinating below 88% will carry special markings and are priced to reflect the reduced germination level. We have made every attempt to evaluate this seed, using these techniques: standard germination tests, cold soil tests, accelerated aging tests, and Florida field growouts.

Our conclusions, and the basis for recommending use of lower germination seed to farmers, are as follows:

1. Seed from frozen lots may have reduced germination levels.
2. Live seed in frozen lots is completely normal in vigor and plants from such seed exhibit normal growth and development.
3. The germination given on the tag continues to be a farmer's best guide as to expected field emergence. Many environmental factors determine final stand but freeze damaged seed is neither more nor less affected by these factors than normal germinating seed.

We are suggesting to farmers that they increase the kernel drop of freeze-damaged low germination seed sufficiently to provide the same number of viable kernels per unit area as with normal seed. Otherwise, no changes in management or cultural practices are indicated.

There is very little literature that bears on this particular problem. Rossman in Plant Physiology 24: 629 (1949) is pertinent. Our own experience is more like his results with mature, dry seed resoaked to various moisture levels and frozen for different lengths of time and at various temperatures. He reported freeze injury to be "all or none" with completely normal behavior of live seed. When he removed immature ears from plants and imposed freezing treatments he found progressive injury with impairment of both vigor and viability. In yield trials, however, vigor differences disappeared by tasseling time and there was no difference between frozen and unfrozen lots when equal stands were attained.

Endosperm Mutants

Don Duvick

Some experimental data and the future of the opaque-2 and waxy endosperm mutants were discussed. At present, not too much of a demand for opaque-2 corn by farmers because of the soybean-corn price ratio. Some demand by hog raisers that grow for feed. Yield trials of opaque-2 hybrids vs normal hybrids show a consistent 10% lower yield for the opaque-2 hybrids; there was no evidence that any opaque-2 hybrid was effective in correcting this yield difference. Preliminary data of the double mutant opaque-2, sugary-2, showed that the double mutant yielded 7% less than normal counterpart. It appears difficult to retain yield levels of normal and that the future probably depends on specialty uses.

Yield trials of normal and waxy hybrids showed that waxy hybrids yielded 90% of normal and grain moisture 4% higher. In these plots the normals were detasseled and what the effects of detasseling had on normals are unknown. Some breeders in the audience indicated they had obtained comparable yields for waxy and normal hybrids; in these instances the normals were not detasseled and the effects of xenia were not known.

Alternative Cytoplasms

R. J. Johnson

I. Problems associated with utilization of cytoplasmic male sterility.

A. Vulnerability to diseases and insects stemming from narrow cytoplasmic base.

B. Efficacy of sterility and/or restoration over a broad range of genotypes.

C. Adverse cytoplasmic or genotypc x cytoplasm effects on general performance.

II. Program for development of useable system.

A. Acquisition of cytoplasmic variation.

B. Identification and classification of cytoplasmic variation.

C. Identification of genotype x cytoplasm interactions.

1. Specific pathogens.

2. General performance.

D. Reinforcement of genetic components for disease resistance or general performance.

E. Maintenance of cytoplasmic variation.

A. Acquisition of cytoplasmic variation.

1. "Spontaneously" occurring steriles (esp. in exotic materials).

2. Induced cytoplasmic steriles; e.g. iojap induced.

B. Identification and classification of sterile cytoplasms.

1. Sterility reaction of testcrosses by inbred testers (useful also in determining range and efficacy of sterility).

C. Identification of genotype x cytoplasmic interactions.

1. Specific pathogens.

a. Specialized program of systematic monitoring.

2. General performance.

a. Performance-tests of sterile-normal versions.

3. _A priori_ assumption that interactions to exist.

D. Reinforcement of genetic components of resistance and performance.

1. All mass selection, inbred development, and/or hybrid testing in the cytoplasm(s) in which hybrids will finally be produced.

E. Maintainance of cytoplasmic variation.

1. "Multiplasm" composites as nonrecurrent backcross parents and as the cytoplasmic bases of source populations.

AFLATOXIN RESEARCH

M. S. Zuber

Prior to about 1970, aflatoxin in corn was considered to be a stored grain problem. Recent investigations have identified natural infections of corn in the field by *Aspergillus flavus*. In almost every case the infection was associated with insect damage. Thus the problem of aflatoxin occurrence on ear corn in the field has been found more in regions in the United States where earworm damage is greatest. Bird damage has also been shown to be involved.

Several surveys conducted by us and others have shown that aflatoxin on field corn is found more in the southern areas of the United States. Corn from the central and northern regions of the United States have shown only limited incidence of *A. flavus* on field corn.

We recently completed a study to determine(1) aflatoxin production from *A. flavus* inoculated ear of field corn grown in geographical areas of the United States, (2) examine the incidence of aflatoxin from mechanically damaged ears, (3) determine if differences existed between normal and opaque-2 hybrids in susceptibility to *A. flavus*, and (4) examine the level of aflatoxin produced at varying times after inoculation with A. flavus.

Two hybrids with normal and opaque-2 versions were grown in Illinois, Missouri, Georgia, and Texas. Ears were inoculated with *A. flavus* 20 days after silking. For comparison, we had control ears (non-inoculated) and ears mechanically damaged. Ears were harvested 15, 30, 45, and 70 days after treatment and examined for bright-greenish yellow (BGY) and assayed for aflatoxin.

The number of aflatoxin-positives in 128 inoculated ears per location increased from north to south: Illinois, 28; Missouri, 86; Texas, 111; and Georgia, 118. Mean levels of aflatoxin B_1 showed a similar pattern: Illinois, 2.4 ppb; Missouri, 22.5 ppb; Texas, 114.5 ppb; and Georgia, 133.9 ppb. Most of the infection and aflatoxin occurred during the initial 30 days after inoculation. Fewer toxin contaminated ears as a result of inoculation were found in one hybrid than in the second suggesting that differences among corn strains may exist. No significant difference was found between the normal and opaque-2 endosperm types. Sixty of the 512 damaged but non-inoculated ears and 21 of the 512 non-inoculated ears contained aflatoxin. The results from this experiment suggested that environmental conditions in the more southern locations were more conductive for aflatoxin development as the result of inoculation than the northern locations.

From a survey conducted in 1972 and 1973 of corn in the field, we found ears contaminated with aflatoxin from State College, Texas; Baton Rouge, Louisiana (only 1972 not in 1973) and Tifton, Georgia. Ear corn from the field grown at Gainsville, Florida, although heavily damaged with earworm, did not show aflatoxin in either year.

The aflatoxin problem in corn has been greatly enhanced in recent years by the shift in the south from full season adapted-earworm resistant hybrids to early-non adapted hybrids from the Corn Belt that have little or no earworm resistance. This shift has been due in part (1) early marketing commanding a higher price, (2) double cropping, and (3) local demand for livestock feed.

Must of the aflatoxin occurrence of aflatoxin in field corn could be greatly reduced by planting adapted hybrids with good husk cover and high levels of resistance to earworms.

After completion of research reports, J. M. Barnes of CSRS reported on the proposals CSRS included in their askings in Congress. ARPAC also studying recommendations of the study reports on genetic vulnerability. CSRS asked for a 100% increase including 9.2 million dollars for competitive grants. The areas of research emphasized were: environmental quality, forest and range management, pest management, food and nutrition, soybean research, and genetic vulnerability. F. C. Smith, Administrative Advisor for NCR-2, emphasized that cooperative research among state, federal, and commercial researchers should be encouraged. S. A. Eberhart was on an exploratory committee to determine needs for winter nursery facilities. Eberhart indicated a form would be sent to the ARS Area Directors and Agricultural Experiment Station Directors to be distributed to all researchers to survey the needs for winter nurseries.

Meeting adjourned at 5:05 p.m. until 8:30 a.m. on February 27, 1975.

BUSINESS MEETING

February 27, 1975

Meeting called to order at 8:30 a.m. by Chairman Compton. There were 23 members present at the NCR-2 business meeting.

The first report was by the nominating committee consisting of P. L. Crane, L. F. Bauman and J. H. Lonnquist, Chairman. The committee nominated Harold Cross from North Dakota State for the vacancy on the Executive Committee; the term for the new member is for 1975-1979. There were no further nominations from the floor and a motion that Harold Cross be nominated to the executive committee, seconded, and passed unanimously.

S. A. Eberhart reported that researchers in the Philippines were interested in testing U.S. lines for downy mildew and rust (*Puccinia sorghi*). They need 100 seeds of A297, A554, W117, Ky201, Ky226, R177, and 33-16.

Report of the Sub-committee on Meeting Place

A joint meeting is scheduled with the Northeastern and Southern Conferences in early 1976. Each of the Northeastern and Southern Conferences have indicated a preference for holding a joint meeting, and a place, and time for holding an interregional meeting. In the 1974 NCR-2 business meeting, NCR-2 had indicated that a joint meeting be held in 1976. There was some discussion on the advantages and disadvantages of a joint meeting and possibility of including industry representatives. Initially a national corn conference, but the Northeastern and Southern Conferences were formed and broke away from one conference. In addition within the North Central Region, the pathologists (NCR-25) and entomologists (NCR-46) separated from NCR-2 for form separate committees.

The preferences for meeting places for the Northeastern and Southern were:

Southern	Northeastern
1. Homestead or Miami, FL	1. Washington, D.C.
2. Knoxville, Tenn.	2. Cincinnati, OH
3. Atlanta, Raleigh, Memphis	3. Atlanta, GA

Preferred time of meeting was last of January or first of February.

There was further discussion about the size of the meeting, facilities for the meetings if too large, and the feasibility of including industry representatives in the joint meetings. M. S. Zuber made a motion not to invite industry representatives to the joint 1976 meetings. Motion seconded by S. A. Eberhart. During the discussion, it was suggested the secretary write a letter to industry people regarding the mechanics of holding a large meeting, size of attendance, and lack of discussion when a large crowd. Motion carried that not invite industry representatives to the interregional meetings in 1976.

Discussion was then given to a suitable meeting place for the interregional meetings. Some questioned the availability of facilities at Homestead. Cincinnati and Chicago were suggested because of available and ease of transportation. Suggestions from floor and names considered by the other two regions were voted on to determine preference of meeting place by NCR-2. Preference of meeting place by NCR-2 was as follows:

1. Chicago
2. Washington, D.C.
3. Atlanta and Cincinnati

Three suggestions for time of meeting were first week of March, fourth week of February, and second week of February. The three meeting times were voted on with the order as follows:

1. Second week of February - 6 votes
2. First week of March - 5 votes
3. Fourth week of February - 5 votes

There was not a clear consensus for time of meeting, but members of NCR-2 favored latter part of February or first week in March.

Reporting of the Subcommittee for Grouping of Lines for Breeding Purposes

The assignment of inbred lines to Group A or B is usually reviewed and updated about once in 4 years. Anyone wishing to know the group assignment of a line should refer to the 1974 report of the North Central Corn Breeding Research Committee (NCR-2).

The following inbred lines were released in 1974:

Inbred line	Source	Comments
B77	BS11(FR)CO	Prolific, high general combining ability
H99	Ill. Syn. 60C	Short plant, some resistance to *Helminthosporium turcicum*
H100	N28 x H91	Susceptible to *H. turcicum*
N141	BIII Synthetic S3 line	7 days later than B14
N142	BIII Synthetic S3 line	4-5 days later than B14
N159	WF9-21/2(WF9-21 x Teosinte)	2 days earlier than B14
N160	(K64 x Teosinte) x N6/2	2 days earlier than B14
Oh509A	(B37 x Oh7B) x B37	Good tolerance to MDMV and MCDV
Oh513	(Oh07 x L97) x Oh07/3	High tolerance to MDMV and MCDV, improved for resistance to *H. turcicum*
Pa347	(WD x Co109)(Co111 x Co107)	Early, good stalk strength
Pa351	O.P. yellow dent	Early, good stalk strength
Pa864P	[(M14 x K115)* Os420(ND273 x NC34)*]* B14	7 days earlier than B14
Pa865P	[(Oh04 x NC34)* (M14 x K155)*]CI42A	Good resistance to leaf blights, high g.c.a.
R806	Alexo Synthetic, Cycle III	8-9% oil
$RCI64Ht_1^A$	[(CI64 x Source A)CI64/6]S3	Combines monogenic and polygenic resistance to *H. turcicum*

Inbred line	Source	Comments
Va53	(WF9 x RL) x (WF9 x 751)	Resistant to MDMV, but susceptible to stunt

The following synthetics or composites were released by Agriculture Experiment Stations in 1974:

Iowa

BS16 was developed by six cycles of mass selection for earliness from Eto Composite, obtained from Ricardo Ramirey E. at Medellin, Colombia. The synthetic is 30 days earlier and 50 cm lower ear height than the original Eto Composite and is adapted in central and southern Iowa. BS16 has excellent general combining ability and has high frequencies of genes that condition resistance to viruses, downy mildew, and first- and second-brood European corn borer.

Virginia

VCBS (Virginia Corn Belt-Southern Synthetic) originated from crosses of U.S. southern and Corn Belt germ plasm. It carries genes for resistance to several major corn diseases, including multigenic resistance to *Helminthosporium turcicum*.

VCBS(S)C4 was developed from VCBS by four cycles of recurrent selection for S_1 yield. The coefficient of inbreeding is 20% or more. It is about 22% higher in yield than VCBS and comparable to VCBS in maturity and yield. Its crosses average 12% higher yield than VCBS and S_1 lines isolated from VCBS(S)C4 have averaged 30% higher in yield than those from VCBS. Many plants are prolific; grain is yellow and of good quality. It is best adapted to central and southern Corn Belt latitudes.

VCBX (Virginia Corn Belt-Exotic Synthetic) originated from blend of populations that included germ plasm from U.S. Corn Belt and Mexico Central and South America, and the Caribbean. VCBX is highly variable; many plants are prolific; and endosperm is primarily yellow, but white and purple kernels are present. It is adapted primarily to eastern Virginia (southern Corn Belt growing conditions), but, because of its variability, selections may be made over a wide range of latitudes.

VMX (Virginia Mexican Synthetic) originated from 236 crosses representing 25 races of corn collected and intercrossed by the Rockefeller Foundation in Mexico. The synthetic evolved after several generations of mass selection in Virginia for agronomic traits such as earlier maturity, lower plant and ear height, disease resistance, and grain quality. VMX is highly variable for plant and ear traits. Many plants are prolific. The kernels are predominantly yellow, but some kernels are red, white, brown, or purple.

L. F. Bauman

W. A. Russell, Chairman

Report of the Sub-Committee on Uniform Tests of Inbred Evaluation

Uniform tests to evaluate inbred lines for disease and insect reaction were grown in seven states in 1974. Locations, cooperators and characters evaluated are listed below.

Illinois - A. L. Hooker, S. M. Lim and D. E. Fisher - *Helminthosporium carbonum*, *H. turcicum*, Anthracnose, and *Diplodia* stalk rot.

Iowa - W. D. Guthrie - European corn borer.

Missouri - M. S. Zuber - Stalk, weight 2 inch section, crushing strength and rind thickness, and virus rating.

Ohio - W. R. Findley and E. J. Dollinger - *H. turcicum*, Stewart's wilt, *Diplodia* stalk rot, maize dwarf mosaic virus and maize chlorotic dwarf virus.

South Dakota - L. H. Penny - Root pulling resistance.

Texas - R. A. Frederiksen - Sorghum downy mildew

Wisconsin - D. C. Arny and W. H. Hughes - Yellow leaf blight and eyespot.

The data are summarized in the accompanying table. Inbred lines were grouped by approximate maturity with those used as standards listed first. In general 2 replicate tests were grown. Eyespot readings are from 1 replication only.

Hot, dry weather in Illinois resulted in low leaf disease infection and limited secondary spread. In Ohio, initial leaf disease infection was satisfactory, however, secondary spread was low until late in the season, due to dry weather.

Root pulling resistance measurements were made 2 to 3 weeks after silking. Comparisons between lines should be made within maturity groups. The data are given in pounds pull required to left a plant vertically from the soil and represent means of 5 plants each from 3 replications.

M. W. Johnson
A. L. Hooker
M. S. Zuber
W. R. Findley, Chairman

Table 2. Summarized results of the 1974 NCR-2 tests of inbred evaluation

Inbred	Texas: Sorghum downy mildew (%plants)	Illinois: H. Carbonum (9-13)	Illinois: Anthracnose (9-18)	Illinois: H. turcicum (8-21)	Illinois: Diplodia (9-24&10-9)[1]	Ohio: Diplodia (9-23)	Ohio: H. turcicum (9-11&9-20)[1]	Ohio: Stewart's wilt (8-30)	Wisconsin: Yellow leaf blight (8-30)	Wisconsin: Eyespot (9-21)	Ohio: MDM % plants (7-23)	Ohio: MCD % plants (7-23)	Virus rating (7-25&8-8)[2]	Missouri: Stalk wt. 2" section (gm)	Missouri: Stalk crushing strength (kg)	Missouri: Rind thickness (cm)	S.D.: Root pull resistance (lbs)	Iowa: E. corn borer 1st brood (rating)
								100-300 Maturity										
W117	0	1.2	2.0	2.2	1.9	4.1	4.8	4.3	0.5	0.5	0	100.0	3.8	2.27	647.3	.533	161	5
W153R	13.0	0.2	2.0	1.2	1.4	4.3	3.8	2.5	0.5	0	64.6	97.2	4.0	1.93	425.3	.593	188	5
ND71-28	8.0	0.2	1.5	2.1	2.9	4.2	4.5	3.8	0	0.5	69.8	96.3	2.6	2.47	630.0	.670	116	7
ND71-42	37.0	-	1.8	2.2	-	-	4.5	3.8	0	1.0	61.7	100.0	4.7	2.23	307.3	.583	174	6
ND71-49	31.5	1.2	1.5	2.8	3.2	4.1	5.0	4.5	0	1.0	36.3	92.6	4.8	2.83	619.7	.593	193	9
ND71-50	8.5	-	4.2	4.5	2.9	4.1	4.8	5.0	1.5	0.5	56.4	100.0	4.2	2.67	576.0	.663	163	7
ND71-59	0	0.8	1.5	1.8	2.2	4.2	5.0	2.0	0.3	1.0	87.5	94.4	4.7	2.10	358.3	.557	188	7
W513	91.5	1.2	3.0	4.5	2.5	4.1	5.0	5.0	0.5	0.5	55.6	93.1	4.6	2.23	393.3	.570	168	4
W627C	0	0.8	3.0	2.8	2.8	4.1	4.5	4.8	0.3	0.5	35.2	89.7	4.4	3.03	563.7	.570	112	9
W739A	57.0	1.5	2.0	2.2	3.5	4.2	5.0	4.8	0.9	0.5	35.4	93.5	4.1	1.87	468.3	.563	153	7
								400-600 Maturity										
Oh43	19.0	0.2	1.0	1.0	0.7	4.1	3.3	2.0	0.6	0	74.7	84.0	4.3	3.00	828.7	.577	406	3
Oh51A	15.0	0.5	1.0	0.6	3.1	4.2	5.0	1.5	0.3	1.0	41.2	89.6	4.2	1.93	350.3	.523	364	4
W64A	37.5	2.0	1.2	1.2	1.1	4.2	5.0	2.5	0.5	1.0	42.9	91.7	3.8	2.53	712.0	.537	398	6
MS70	88.5	0.8	0.8	1.6	1.6	4.0	5.0	3.5	1.3	0.5	23.9	75.0	4.0	3.33	730.0	.593	-	2
MS71	98.0	0.2	1.0	0.5	2.3	4.0	5.0	2.0	1.5	0.5	54.4	96.8	3.9	3.63	962.7	.647	562	4
MS153	80.0	0.2	1.0	0.5	1.5	4.1	2.0	0.8	1.0	1.0	29.5	97.3	3.9	3.07	516.3	.553	374	3
Mich.74-1	0	0.2	1.0	1.1	2.9	4.0	3.8	2.5	0.5	2.0	26.9	72.7	4.0	2.60	532.7	.607	272	3
Mich.74-2	0	0.5	1.5	0.5	3.0	4.1	2.8	1.3	1.5	2.5	30.3	87.5	3.8	3.90	731.3	.593	335	3
Mich.74-3	63.5	1.5	1.8	2.2	2.0	4.8	5.0	3.5	3.8	2.5	50.6	97.6	2.6	2.10	470.0	.507	232	4
Mich.74-4	100.0	0.2	0.5	1.1	1.6	3.2	2.5	1.5	0	0.5	69.1	100.0	5.0	1.93	506.0	.567	443	3
A70-12	11.5	1.0	1.0	1.8	3.7	4.2	3.5	2.0	0	0.5	65.9	96.0	5.1	1.60	404.0	.553	345	4
A71-9	12.5	0.2	1.0	0.9	2.8	4.1	3.8	2.3	0	0.5	28.2	88.4	3.9	1.93	406.3	.527	377	5
A71-11	70.0	0.8	1.5	1.4	2.6	4.9	3.3	2.8	0	0	33.5	86.5	4.2	2.60	558.0	.570	280	3
A71-18	88.5	0.5	1.5	1.2	1.4	4.0	5.0	2.8	0	0	42.6	89.5	3.2	3.47	456.0	.580	320	7
A71-22	2.0	0.2	1.0	1.1	1.5	3.7	2.3	2.0	0	0	52.8	94.4	4.5	1.53	196.3	.520	380	7
Oh561	21.5	0.5	0.5	0.4	1.0	3.0	3.3	1.5	0	0.5	58.8	100.0	3.5	2.97	795.0	.597	200*	7
Oh565	21.5	1.2	2.0	1.1	1.3	3.9	3.5	1.5	1.0	0.5	55.6	96.3	4.5	1.90	189.0	.520	171*	7
Pa405	100.0	0.5	0.5	1.4	2.2	4.1	3.8	1.3	0	0.5	0	97.8	4.2	2.37	510.0	.540	389	5
Pa409	0	1.0	1.5	1.8	4.0	4.3	5.0	3.0	0.5	1.0	60.5	93.5	3.7	2.33	615.7	.510	201	7
Pa762	28.0	0.2	0.2	0.4	1.7	3.8	3.3	0.8	0.8	1.0	79.0	97.2	5.4	2.43	447.7	.677	116*	3
W406	0	0.2	0.2	0.6	2.1	4.1	5.0	2.3	2.0	0.5	42.1	97.0	3.4	3.20	870.3	.537	250	4
W438	75.5	1.0	1.0	0.5	2.5	4.2	4.8	1.8	0	0.5	17.2	97.6	3.6	2.60	573.0	.560	371	5
W462	4.5	0.5	0.8	1.4	2.3	4.0	5.0	1.8	0	0	25.6	100.0	6.1	2.33	211.0	.557	-	8
W729D	90.5	-	4.5	3.9	-	5.1	4.8	4.8	0.5	0	56.7	47.6	5.2	2.13	413.3	.583	323	7
								700-800 Maturity										
H55	0	0.8	0.5	0.2	1.3	4.0	0.5	1.0	0.5	0	80.1	94.7	6.2	2.77	399.7	.610	266	3
WF9	19.5	0.5	0.8	1.4	1.8	4.0	4.5	2.3	1.5	0.5	47.5	100.0	4.1	2.63	533.3	.593	199	9
B14	96.5	0.8	0.5	2.4	1.1	4.0	4.5	2.8	0	1.0	39.3	90.1	4.6	3.77	723.0	.573	210	9
837	31.0	1.0	0.5	0.8	1.2	3.8	5.0	1.0	0.1	0	49.7	94.1	4.7	3.23	650.0	.607	210	7
Oh7B	97.5	1.0	0.5	1.9	2.3	4.0	5.0	1.5	1.1	0	20.6	76.2	3.2	2.97	708.3	.497	194	7
877	100.0	0.2	0.2	0.5	2.0	4.1	2.5	0.8	0.8	0	37.9	88.2	3.9	3.87	712.3	.633	281	4
878	98.5	0.5	0.5	1.2	1.1	4.0	4.5	2.0	0.5	0.5	44.8	93.5	3.1	4.57	1269.3	.617	208	5
Mo17C	7.5	0.5	0.2	0.5	1.3	3.7	3.5	1.5	0.1	2.0	30.3	83.9	3.1	3.97	867.7	.583	214	7
Mo17D	7.5	1.0	0.5	1.2	1.0	3.5	4.3	1.3	0.3	1.0	33.2	77.1	3.5	4.07	962.7	.590	241	9
Mo17H	0	0.8	0.5	0.5	1.3	2.5	2.8	1.0	2.0	4.5	46.7	100.0	4.4	2.87	508.3	.530	240	5
(Mo22xA251)S9	100.0	0.5	1.5	1.6	1.8	4.5	4.8	2.8	1.5	0	7.7	100.0	3.9	2.53	651.7	.540	206	9
(B57xB14A)S8	4.0	1.0	1.2	1.2	1.9	3.9	4.5	1.8	0	1.0	42.8	100.0	5.8	2.97	622.7	.617	211	9
(N38AxOh41)S8	6.0	0.8	1.0	1.5	1.7	3.7	5.0	2.3	1.5	2.5	14.2	85.0	4.1	2.10	351.0	.520	322	6
(PP20xSD10)-1-S9	22.5	1.0	1.0	0.6	2.9	4.2	1.8	2.5	0	4.0	41.5	69.0	5.1	2.27	368.0	.563	256	6
(A251xMex.Syn.17)-3-S9	42.0	1.2	1.2	0.8	1.2	3.8	4.3	1.3	4.3	0.5	29.1	97.0	4.0	3.10	795.0	.550	297	9
(Syn.A High)-S3 (1)	55.5	0.8	0.2	0.2	1.6	4.0	1.8	1.0	0	0.5	63.2	96.0	3.1	3.87	996.3	.623	185	5
(Syn.A High)-S3 (2)	93.5	0.2	0.5	0.9	2.3	4.0	2.8	1.5	0.4	1.0	34.1	83.3	3.6	4.83	1188.0	.630	272	6
(Syn.B High)-S3 (1)	2.0	0.8	0.5	0.4	3.4	4.1	3.8	2.0	0	0	84.8	100.0	4.2	2.93	724.3	.593	269	7
(Syn.B High)-S3 (2)	15.5	0.5	0.5	0.5	2.8	4.0	2.5	1.0	3.0	0.5	43.1	94.7	5.9	3.57	661.3	.540	269	4
N156 (S891-3-1)	85.5	0.2	0.5	0.6	1.0	3.7	2.3	1.5	0	0.5	2.7	100.0	3.3	3.23	579.3	.537	254	5
N157 (S891-3-2)	-	0.5	-	0.9	1.3	3.7	2.3	1.5	2.8	1.5	27.2	97.4	4.1	2.97	324.7	.600	239	4
N158 (S891-3-3)	62.5	0.5	0.5	0.5	1.3	3.8	2.8	1.5	0	1.0	17.8	100.0	4.7	2.77	391.0	.547	197	3
N162 (S891-3)	32.0	0.8	0.5	1.0	1.1	3.7	1.8	2.0	0.3	0.5	6.5	100.0	4.5	2.83	439.3	.547	213	2
Oh512	54.5	0.2	0.2	0.5	1.6	4.0	1.3	1.0	0	0	41.2	94.1	4.1	3.37	624.3	.573	197	4
Oh516	69.5	0.5	0.5	0.4	1.0	3.6	1.0	1.5	0.6	1.0	14.3	90.2	3.5	3.97	832.0	.550	218	6
Oh517	14.5	0.2	0.2	0.4	1.1	3.0	1.0	0.5	0.8	0.5	54.1	89.3	3.1	4.93	1117.3	.600	241	5
Pa419P	17.5	1.0	0.2	0.8	1.2	4.1	1.3	1.3	0.5	0.5	48.8	82.0	5.0	2.37	379.7	.603	269	6
Pa887P	28.5	0.2	0.2	0.2	1.7	4.1	0.8	0.5	1.0	0.5	20.0	100.0	4.4	3.07	509.7	.557	308	3
Rating scale		0-5	0-5	0-5	0-6	0-6	0-5	0-5	0-5	0-5			1-9					1-9

1/ Early lines rated on earliest date.

2/ Ratings are averages of both dates.

* Compare with 700-800 maturity group for root pull resistance.

Report of the Sub-committee on Uniform
Tests in the 100-300 Maturity Series

Seed was produced for 32 lines on two single cross testers at North Dakota in 1974 for the 1975 regional tests. The two single cross testers were A509 x MS1334 and W59E x W629A. Including testers, this should involve 66 entries for the 1975 tests. Parental lines are listed in Table 1.

Data from the 1974 Regional 100-300 maturity three-way trials were summarized at Minnesota and are presented in Tables 2-9. Unfavorable weather during the season eliminated the trial at Guelph and only one replication was grown at Morden. The Morden data is included in Table 9, but is not included in the summary.

Jon Geadelman
J. H. Lonnquist
H. Z. Cross, Chairman

Table 3. Inbreds used for producing seed of three-way hybrids with two testers (A509 x MS1334) and (W59E x W629A) for 1975 regional testing.

Inbred	Source	Inbred	Source
CG11	Pride 4 sel.	Pa71-45	Pa32 deriv. from FSC lot 271 (1955)
CG12	Pride 4 sel.	Pa71-47	Pa32 deriv. from 1961-81-84
CG13[b]	Golden Glow	Pa71-56	(CH157 x Hookers "A")CH157
CG14	Wigor (European)	A69-3	Minn. Syn C.
CG15	Wigor (European)	A69-4	Minn. Syn C.
CM44	A117 x CMV3[2]	A71-28	(A509 x E50)E50[3]
CM47	Italy	A71-29	(A509 x E51)E51
CM48	Greece	A71-34[a]	(ND203 x A635)A635[3]
CM64	CM2 x Rainbow	A71-35	(ND203 x A635)A635[3]
CM75	CM7 x Sweet	A71-38[a]	(MT42 x A634)A634
CM80	CM7 x Sweet	A71-41[b]	(WD x E58)E58[3]
CM139	CMV3 x B14[2]	ND71-53	(ND230 x ND408)ND408
CM174	CMV3 x B14[2]	ND71-41	(ND230 x ND405)ND230
SD9[a]	O.P. variety	ND71-60	(ND230 x ND408)ND408
SD24	(B14 x Gaspe)⊗ 1 x B14	ND71-61	(ND230 x ND408)ND230
SD28	$B8_2$ x (unknown inbred)	ND71-36	(ND230 x ND480)

[a] Seed of three-way hybrid with A509 x MS1334 may be inadequate.

[b] Seed of three-way hybrid with W59E x W629A may be inadequate.

Table 4. Summary of line prepotentcies (mean over two testers) for the Regional 100-300 maturity 3-way Trials, 1974.

Pedigree	(A) Grain yield (g/ha) Mean	T1	T2	(A) Moisture (%)	(B) Stalk lodging (%)	(C) Root lodging (%)	(D) Plant ht (cm)	(E) Ear ht (cm)	(F) Dropped ears (%)
SDP2	53	56	49	25	6	4	173	76	2
SDP232	55	54	56	24	8	6	165	73	1
SDP236M	56	55	56	28	16	12	170	70	1
SDP254	59	60	58	30	5	11	183	92	3
W117	54	56	51	27	4	7	177	85	2
W513	51	52	49	26	13	7	181	77	8
W153R	55	59	51	27	9	9	183	88	3
W627C	55	57	52	27	6	20	179	86	2
W739A	51	54	48	27	10	12	171	77	3
72475-142	55	55	55	25	11	4	170	83	1
PA71-53	56	55	57	30	16	6	193	88	3
PA71-54	49	44	53	28	4	6	170	80	2
PA71-57	54	58	50	29	11	8	189	92	2
A71-3	55	58	52	26	10	14	185	80	4
A71-7	52	52	51	27	3	8	168	75	1
A71-15	59	60	57	26	8	11	177	75	2
A71-19	53	49	57	26	7	6	179	66	0
(1)A71-25	54	52	55	22	15	6	180	79	3
NY140	56	56	55	26	9	12	185	82	5
NY205	50	54	46	28	13	17	175	75	4
NY63-130-2	46	49	42	23	5	8	168	73	3
NY64-247-2	53	54	52	23	8	6	173	73	4
NY72-890	51	48	54	25	5	5	175	78	6
NY72-902	52	53	50	23	9	10	185	85	1
NY72-1005	55	56	54	31	6	6	175	72	2
PI343951	49	44	53	23	14	7	173	83	2
PI343953	55	54	55	26	12	8	176	81	4
PI343954	55	56	53	24	21	8	173	78	3
Mich 73-06	52	52	51	25	16	17	176	79	3
ND71-59	53	56	49	25	19	7	172	77	3
ND71-28	55	54	55	23	24	12	178	83	5
ND71-50	53	53	53	24	24	8	181	86	9
(2)ND71-49	51	51	51	23	10	6	170	75	6
ND71-42	50	50	50	23	14	7	168	73	3
Mean	53	54	52	26	11	9	176	80	3

T1 = A509 x MS1334 T2 = W59E x W629A

A - all locations: MI, MN, ND, PA, SD, WI

B - MI, MN, ND, PA, SD

C - MI, MN, ND

D - ND, PA

E - ND, PA, WI

F - MN, SD

(1) Tested in MN and SD only

(2) Tested in all locations except PA

Table 5. Summary of 1974 Regional 100-300 Maturity 3-way tests for crosses with A509 x MS1334 (Tester 1).

Pedigree		(A) Grain yield (q/ha)	(A) Harvest moisture (%)	(B) Stalk lodging (%)	(C) Root lodging (%)	(D) Plant ht (cm)	(E) Ear ht (cm)	(F) Dropped ears (%)
(A509 x MS1334) x	SDP2	56	25	5	3	179	79	1
"	SDP232	54	25	5	9	169	73	1
"	SDP236M	55	28	16	20	184	75	0
"	SDP254	60	29	5	16	196	97	4
"	W117	56	27	3	9	181	90	1
"	W513	52	25	14	8	182	81	8
"	W153R	59	26	9	12	186	90	4
"	W627C	57	26	8	27	185	84	0
"	W739A	54	27	11	17	171	76	2
"	72475-142	55	25	11	5	170	85	1
"	PA71-53	55	29	17	8	195	91	1
"	PA71-54	44	28	2	10	174	83	1
"	PA71-57	58	29	8	12	193	96	2
"	A71-3	58	25	13	15	187	81	4
"	A71-7	52	28	5	11	168	76	2
"	A71-15	60	26	9	11	183	82	2
"	A71-19	49	27	9	3	180	66	0
"	A71-25	52	23	8	8	181	78	4
"	NY140	56	25	11	17	183	74	4
"	NY205	54	28	14	21	181	76	6
"	NY63-130-2	49	22	6	12	173	72	4
"	NY64-247-2	54	22	8	8	168	70	4
"	NY72-890	48	26	6	24	188	89	6
"	NY72-902	53	22	11	9	179	82	7
"	NY72-1005	56	30	5	13	189	87	1
"	PI343951	44	22	11	5	175	70	1
"	PI343953	54	25	16	8	178	86	0
"	PI343954	56	24	23	13	177	79	1
"	Mich 73-06	52	25	15	12	172	76	0
"	ND71-59	56	25	16	23	180	78	0
"	ND71-28	54	22	24	8	175	76	4
"	ND71-50	53	25	24	17	180	92	5
"	ND71-49	51	24	9	11	178	90	5
"	ND71-42	50	23	16	5	172	74	2
	A509 x MS1334	56	23	14	12	173	77	1
	Mean	54	25	11	12	180	81	3

A - all locations: MI, MN, ND, PA, SD, WI

B - MI, MN, ND, PA, SD

C - MI, MN, ND

D - ND, PA

E - ND, PA, WI

F - MN, SD

Table 6. Summary of 1974 Regional 100-300 Maturity 3-way tests for crosses with W59E x W629A (Tester 2).

Pedigree	(A) Grain yield (q/ha)	(A) Harvest moisture (%)	(B) Stalk lodging (%)	(C) Root lodging (%)	(D) Plant ht (cm)	(E) Ear ht (cm)	(F) Dropped ears (%)
(W59E X W629A) x SDP2	49	24	7	4	167	73	2
" SDP232	56	23	10	3	161	73	1
" SDP236M	56	27	15	4	156	65	1
" SDP254	58	30	4	5	170	86	2
" W117	51	26	4	5	172	80	3
" W513	49	26	11	5	179	73	7
" W153R	51	27	9	5	180	85	2
" W627C	52	27	4	13	172	87	4
" W739A	48	26	8	7	171	78	4
" 72475-142	55	25	10	3	169	81	1
" PA71-53	57	30	14	3	191	85	4
" PA71-54	53	28	6	1	165	77	2
" PA71-57	50	29	13	3	185	88	2
" A71-3	52	27	6	13	182	79	3
" A71-7	51	26	1	4	167	73	0
" A71-15	57	25	7	10	171	68	2
" A71-19	57	25	5	9	178	65	0
(1) " A71-25	55	20	22	4	178	80	1
" NY140	55	26	6	6	186	90	5
" NY205	46	28	12	12	168	74	1
" NY63-130-2	42	24	4	4	163	74	1
" NY64-247-2	52	24	7	3	177	76	3
" NY72-890	54	24	4	6	185	104	6
" NY72-902	50	23	8	0	171	73	4
" NY72-1005	54	31	6	6	181	82	1
" PI343951	53	23	16	7	174	74	3
" PI343953	55	27	8	6	168	79	3
" PI343954	53	24	19	2	174	82	6
" Mich 73-06	51	24	16	4	173	79	5
" ND71-59	49	24	22	11	172	79	5
" ND71-28	55	23	23	6	168	77	2
" ND71-50	53	23	24	7	176	74	4
(2) " ND71-49	51	22	11	5	184	82	12
" ND71-42	50	23	11	6	167	75	10
W59E x W629A	50	26	8	1	162	68	4
Mean	52	26	10	6	173	78	3

A - all locations: MI, MN, ND, PA, SD, WI,

B - MI, MN, ND, PA, SD

C - MI, MN, ND

D - ND, PA

E - ND, PA, WI

F - MN, SD

(1) Tested in MN and SD only

(2) Tested in all locations except PA

Table 7. Grain yields (q/ha) of 1974 Regional 100-300 maturity 3-way hybrids by tester and individual states.

	T1						T2					
Pedigree	MI	MN	ND	PA	SD	WI	MI	MN	ND	PA	SD	WI
SDP2	53	64	60	70	20	71	42	63	65	42	17	65
SDP232	48	63	65	64	22	63	49	65	59	57	19	85
SDP236M	52	73	55	65	21	64	42	65	46	37	21	61
SDP254	54	83	64	57	20	83	55	70	55	76	19	73
W117	54	68	61	58	20	74	52	65	54	48	21	65
W513	42	67	61	57	14	71	48	65	48	56	17	61
W153R	55	75	59	60	20	84	44	69	56	50	24	64
W627C	46	66	62	68	21	77	54	68	50	51	17	70
W739A	43	64	60	63	20	75	43	57	49	58	13	65
72475-142	50	68	64	54	26	70	47	67	61	58	24	72
PA71-53	51	73	61	58	17	69	57	70	54	66	21	73
PA71-54	44	60	52	45	13	49	54	65	48	72	16	65
PA71-57	58	73	57	57	23	81	41	67	54	49	20	66
A71-3	56	72	61	57	21	82	50	68	57	53	17	69
A71-7	50	67	52	56	15	74	44	68	47	57	23	66
A71-15	56	69	58	66	20	89	53	70	58	74	25	64
A71-19	42	67	65	43	13	61	55	69	54	77	11	78
A71-25	50	71	62	52	24	55		56	54			
NY140	59	70	50	57	24	77	58	64	50	64	21	74
NY205	54	68	50	63	21	66	47	57	42	54	15	61
NY63-130-2	44	67	54	47	18	61	41	50	41	50	14	58
NY64-247-2	46	67	61	58	26	64	48	65	54	49	25	70
NY72-890	49	63	45	52	13	64	62	66	49	63	14	69
NY72-902	48	67	56	62	16	70	44	72	53	58	15	59
NY72-1005	53	71	59	59	20	74	59	69	50	56	26	64
PI343951	42	60	60	34	18	52	51	70	66	46	22	62
PI343953	45	68	63	46	22	78	45	71	62	62	21	70
PI343954	46	67	64	61	23	74	45	67	58	61	29	60
Mich 73-06	58	65	51	56	17	63	55	67	55	40	21	66
ND71-59	50	75	61	52	23	76	37	73	48	44	21	71
ND71-28	46	68	64	59	26	61	51	69	65	55	25	67
ND71-50	41	65	63	52	22	77	39	66	62	57	23	69
ND71-49	49	71	61	46	16	65	50	65	60		16	65
ND71-42	39	60	68	55	20	57	50	60	63	53	24	50
Tester	45	82	58	54	22	75	46	62	56	59	25	54
Mean	49	68	59	56	20	70	49	66	54	56	20	66

T1 = A509 x MS1334

T2 = W59E x W629A

Table 8. Moisture at harvest (%) of 1974 Regional 100-300 maturity 3-way hybrids by tester and individual states.

	T1						T2					
Pedigree	MI	MN	ND	PA	SD	WI	MI	MN	ND	PA	SD	WI
SDP2	30	20	26	32	20	19	32	19	26	30	18	18
SDP232	31	21	25	31	21	22	28	20	24	28	19	18
SDP236M	31	23	33	32	24	25	33	23	31	33	20	22
SDP254	34	25	30	33	27	24	35	27	35	33	26	25
W117	29	28	30	30	21	21	31	21	30	31	22	21
W513	30	22	24	32	21	20	30	24	30	30	21	22
W153R	30	21	32	32	22	20	32	23	34	31	20	21
W627C	32	20	29	31	26	20	32	22	32	30	23	20
W739A	31	24	31	32	21	22	32	21	30	30	20	21
72475-142	30	21	28	31	19	22	30	20	30	30	20	20
PA71-53	34	23	31	34	25	28	34	26	36	33	24	24
PA71-54	33	21	34	34	25	22	34	23	35	32	22	20
PA71-57	33	28	30	33	29	21	33	24	36	31	26	25
A71-3	32	19	27	32	21	21	35	17	33	34	19	24
A71-7	32	25	30	34	24	21	30	27	31	29	21	19
A71-15	31	21	27	33	24	21	31	22	27	30	18	19
A71-19	33	20	31	31	23	21	32	21	29	29	18	18
A71-25	28	19	24	30	20	19		18	22			
NY140	28	21	32	30	20	21	31	22	33	31	19	21
NY205	29	25	36	31	22	23	30	25	35	30	23	24
NY63-130-2	28	17	22	29	18	19	30	21	26	29	19	18
NY64-247-2	26	18	23	27	20	16	31	20	26	30	20	19
NY72-890	30	20	28	31	26	20	28	20	24	29	22	19
NY72-902	27	17	22	29	21	18	30	18	22	29	20	18
NY72-1005	32	24	37	32	25	27	34	24	41	32	24	28
PI343951	25	21	23	28	19	18	26	22	26	27	19	20
PI343953	30	21	28	29	22	20	32	25	33	30	23	21
PI343954	28	22	25	28	21	22	29	22	24	30	19	20
Mich 73-06	28	24	28	28	20	21	27	21	26	29	19	20
ND71-59	28	22	29	28	21	21	28	21	26	30	20	20
ND71-28	26	20	22	28	19	18	27	21	22	29	17	19
ND71-50	30	21	29	27	20	20	28	20	24	28	18	19
ND71-49	28	19	28	29	21	17	28	20	23		21	19
ND71-42	30	20	23	26	20	17	27	22	24	28	18	19
Tester	28	18	24	29	21	19	31	23	29	32	19	20
Mean	30	21	28	30	22	21	31	22	29	30	21	21

T1 = A509 x MS1334

T2 = W59E x W629A

Table 9. Stalk lodging and root lodging of 1974 Regional 100-300 maturity 3-way hybrids by tester and individual states.

	Stalk lodging (%)										Root lodging (%)					
	T1					T2					T1			T2		
Pedigree	MI	MN	ND	PA	SD	MI	MN	ND	PA	SD	MI	MN	ND	MI	MN	ND
SDP2	1	19	3	1	0	3	23	4	2	3	3	0	6	0	0	12
SDP232	0	19	6	1	0	0	43	3	0	6	0	0	27	0	0	9
SDP236M	0	72	3	1	2	1	59	5	3	7	0	0	61	1	0	12
SDP254	0	18	1	0	4	1	11	6	0	2	0	1	46	0	0	16
W117	3	4	5	2	2	0	15	3	0	0	0	0	28	0	0	14
W513	2	50	7	3	6	1	31	6	3	13	0	2	23	0	0	16
W153R	1	33	6	3	2	1	19	10	1	12	1	0	34	0	0	16
W627C	0	18	8	1	2	1	6	9	0	3	1	0	80	0	0	40
W739A	2	41	7	2	2	1	25	10	0	3	0	0	50	0	0	22
72475-142	0	40	9	0	7	1	33	7	1	9	0	2	13	0	0	8
PA71-53	0	54	12	0	20	4	41	11	1	12	1	0	22	1	0	8
PA71-54	0	1	5	0	2	0	15	12	0	2	1	0	29	2	0	2
PA71-57	0	23	13	2	2	6	40	16	0	5	1	0	36	2	1	6
A71-3	2	42	7	6	7	0	22	5	0	3	5	0	39	0	0	38
A71-7	0	22	1	0	0	0	6	1	0	0	0	0	34	0	1	10
A71-15	1	31	11	2	2	0	21	5	2	5	1	0	33	0	0	31
A71-19	0	33	6	5	3	4	13	2	1	3	0	1	8	2	0	26
A71-25	0	25	12	1	2		23	20			0	1	22		0	8
NY140	0	38	10	4	4	1	26	0	2	3	1	0	50	0	0	18
NY205	1	54	10	2	5	3	37	9	2	10	2	0	60	3	0	33
NY63-130-2	3	7	14	2	3	1	16	5	0	0	0	0	35	1	0	11
NY64-247-2	0	30	8	1	2	1	12	9	0	12	0	2	23	1	0	9
NY72-890	0	24	2	2	2	1	6	9	1	2	0	7	66	1	1	17
NY72-902	1	35	9	2	7	0	23	5	1	10	1	0	26	0	0	1
NY72-1005	1	16	2	3	3	1	16	5	1	8	0	4	36	1	1	17
PI343951	5	26	5	5	16	9	36	9	3	22	0	0	15	1	0	19
PI343953	2	53	12	1	10	1	25	5	1	7	1	0	24	0	0	17
PI343954	1	71	21	5	15	4	57	23	0	10	0	0	39	1	0	5
Mich 73-06	0	52	13	5	7	1	55	3	0	20	2	0	33	2	0	9
ND71-59	6	61	1	3	10	10	62	29	1	10	0	5	64	0	0	32
ND71-28	4	81	25	7	5	11	60	16	4	22	0	0	23	0	0	18
ND71-50	0	69	7	16	30	7	67	27	0	17	1	0	49	2	0	19
ND71-49	2	28	13	1	0	0	21	15		7	0	0	34	2	0	14
ND71-42	2	40	18	8	11	1	29	11	1	14	0	0	15	1	0	17
Tester	0	48	10	2	8	3	25	9	0	5	1	0	36	1	0	1
Mean	1	37	9	3	6	2	29	9	1	8	1	1	35	1	0	16

T1 = A509 X MS1334

T2 = W59E x W629A

Table 10. Plant height and ear height of 1974 Regional 100-300 maturity 3-way hybrids by tester and individual states.

	Plant ht (cm)				Ear ht (cm)					
	T1		T2		T1			T2		
Pedigree	ND	PA	ND	PA	ND	PA	WI	ND	PA	WI
SDP2	196	162	186	147	91	70	75	91	64	65
SDP232	169	168	167	154	73	76	70	83	76	60
SDP236M	199	168	172	139	81	79	65	71	68	55
SDP254	212	180	179	160	118	93	80	96	81	80
W117	189	173	191	152	104	91	75	101	69	70
W513	194	169	186	171	91	81	70	76	73	70
W153R	196	176	199	161	100	76	95	90	85	80
W627C	190	179	186	158	91	85	75	99	76	85
W739A	183	158	189	153	80	67	80	93	61	80
72475-142	176	164	184	154	87	83	85	91	81	70
PA71-53	204	186	208	174	99	85	90	94	91	70
PA71-54	185	163	170	159	96	83	70	88	73	70
PA71-57	202	183	202	168	98	91	100	97	81	85
A71-3	209	164	204	159	84	80	80	86	72	80
A71-7	181	154	178	155	74	69	85	88	75	55
A71-15	198	168	195	146	86	81	80	78	66	60
A71-19	192	168	180	175	66	67	65	74	65	55
A71-25	189	172	178	-	91	82	60	80	-	-
NY140	184	181	196	175	80	68	75	97	73	100
NY205	191	170	174	162	88	76	65	79	73	70
NY63-130-2	180	166	180	145	87	75	55	78	69	75
NY64-247-2	178	157	188	166	84	61	65	80	69	80
NY72-890	203	172	197	173	86	80	100	110	82	120
NY72-902	189	168	188	154	79	77	90	84	60	75
NY72-1005	204	174	191	170	100	76	85	91	85	70
PI343951	186	163	180	168	85	55	70	81	61	80
PI343953	189	167	178	157	103	80	75	76	80	80
PI343954	186	168	180	167	87	80	70	71	80	95
Mich 73-06	186	157	194	151	85	73	70	89	73	75
ND71-59	185	175	181	163	84	76	75	87	80	70
ND71-28	181	168	179	157	80	74	75	78	78	75
ND71-50	189	171	182	169	97	95	85	81	71	70
ND71-49	191	165	184	-	98	87	85	83	-	80
ND71-42	181	162	177	157	89	67	65	86	73	65
Tester	182	163	170	154	73	78	80	75	69	60
Mean	190	169	185	160	88	78	77	86	74	74

T1 = A509 x MS1334

T2 = W59E x W629A

Table 11. NCR-2 Test

Morden - 1974

Variety		Days to 50% silk	Lodg. (1-5)	Ear height (cm)	Plant height (cm)	Plant count	% moist.	q/ha
A509 x MS1334	- SDP2	59	1	70	185	32	35.2	53
" "	- SDP232	59	2	80	205	37	33.0	52
" "	- SDP236M	59	1	75	215	30	38.0	55
" "	- W117	59	1	100	225	33	34.9	60
" "	- W513	59	1	95	215	33	35.2	46
" "	- W153R	62	1	105	235	32	40.0	49
" "	- W627C	57	1	105	240	36	41.0	61
" "	- W739A	57	1	75	230	32	39.5	51
" "	- 72475-142	59	1	105	240	33	37.5	48
Stewart 2300		59	1	100	220	34	25.1	43
A509 x MS1334	-PA71-54	62	1	90	215	34	40.0	39
" "	- PA71-57	61	1	95	235	35	42.0	44
" "	- A71-3	62	4	105	235	32	40.5	36
" "	- A71-7	61	1	85	230	31	42.0	33
" "	- A71-15	59	3	80	225	31	31.8	61
" "	- A71-25	57	1	65	200	31	33.6	52
" "	- NY140	61	1	80	230	34	42.0	44
" "	- NY205	60	1	75	195	33	40.0	46
" "	- NY63-130-2	59	1	85	210	36	35.3	49
Pride R102		59	3	95	225	30	28.9	44
A509 x MS1334	- NY64-247-2	59	1	60	225	36	30.9	46
" "	- NY72-890	62	2	100	240	34	41.0	34
" "	- NY72-902	61	1	80	200	35	38.2	49
" "	- NY72-1005	61	1	85	225	35	45.0	31
" "	- PI 343951	60	1	74	205	31	34.4	39
" "	- PI 343953	60	1	90	225	34	40.0	51
" "	- PI 343954	57	1	65	210	36	33.9	58
" "	- MICH73-06	59	1	70	195	32	37.6	37
" "	- ND71-59	61	1	90	215	30	39.0	44
Warwick SL209		59	3	65	175	33	40.5	34
A509 x MS1334	- ND71-28	57	2	80	210	33	34.1	58
" "	- ND71-50	59	2	75	210	33	35.6	49
" "	- ND71-49	59	1	100	215	34	40.5	41
" "	- ND71-42	59	1	70	205	31	39.2	43
Dawson M405		59	2	80	215	36	35.4	55
A509 x MS1334		60	1	70	215	37	36.3	47

Seeding date - May 29
Harvest date - Oct. 10

Population - 50,000 plants/ha

Table 12. NCR-2 Test

Morden - 1974

Variety	Days to 50% silk	Lodg. (1-5)	Ear Height (km)	Plant Height (cm)	Plant Count	% Moist.	q/ha
W59E x W629A - SDP2	61	1	75	210	33	33.3	50
" " - SDP232	53	1	65	220	36	29.0	66
" " - SDP236M	61	1	85	235	34	37.0	43
" " - SDP254	61	1	95	230	31	40.5	55
" " - W117	61	1	90	235	32	32.0	47
" " - W513	57	1	70	205	33	35.2	55
" " - W153R	59	1	85	215	35	36.5	64
" " - W739A	59	1	90	210	33	32.3	40
" " - 72475-142	59	1	75	195	33	37.6	46
Stewart 2300	59	1	80	200	33	24.2	50
W59E x W629A - PA71-53	61	1	95	215	34	41.0	46
" " - PA71-54	61	1	80	235	34	41.0	28
" " - PA71-57	59	1	90	240	34	44.0	43
" " - A71-3	61	1	85	235	31	42.0	60
" " - A71-7	59	1	70	220	35	39.5	43
" " - A71-19	57	1	75	220	38	33.1	58
" " - NY140	59	1	95	245	33	41.0	46
" " - NY205	59	1	95	240	35	37.8	52
" " - NY63-130-2	59	1	90	235	32	35.5	41
Pride R102	57	1	95	240	33	36.1	47
W59E x W629A - NY64-247-2	57	1	100	235	37	34.2	54
" " - NY72-902	57	1	100	240	33	30.8	60
" " - NY72-1005	61	1	85	235	33	42.0	57
" " - PI 343951	53	1	85	225	34	33.5	61
" " - PI 343953	57	1	105	240	35	40.0	61
" " - PI 343954	56	1	85	245	35	41.0	58
" " - MICH73-06	54	1	85	225	33	31.0	57
" " - ND71-59	57	1	105	240	34	35.9	61
" " - ND71-28	53	1	85	230	35	28.1	70
Warwick SL209	57	3	85	230	32	29.0	52
W59E x W629A - ND71-50	55	1	80	235	38	34.4	73
" " - ND71-49	58	1	85	230	36	34.4	56
" " - ND71-42	55	1	95	240	35	30.9	68
Morden 88	55	1	95	240	32	30.3	49
Morden 7G	57	2	70	235	30	29.9	61
W59E x W629A	57	1	85	225	35	35.2	55

Seeding date - May 29
Harvest date - Oct. 10

Population - 50,000 plants/ha

Table 13.
Seed produced in 1974 by Michigan for 1975 regional testing.
22 inbreds x 2 testers: (W64A x A632) and (A619 x C123).

Entry No.	Pedigree
1	(W64A x A632) x Oh 564
2	(" ") x Oh 565
3	(" ") x Oh 566
4	(" ") x Oh 567
5	(" ") x Oh 568
6	(" ") x E43-25 (Ind.)
7	(" ") x A71-9
8	(" ") x A71-11
9	(" ") x A71-18
10	(" ") x A73-1
11	(" ") x A73-2
12	(" ") x A73-3
13	(" ") x A73-4
14	(" ") x A73-5
15	(" ") x N165
16	(" ") x Pa.71-59
17	(" ") x Pa.71-63
18	(" ") x Pa.71-69
19	(" ") x Mich.75-1
20	(" ") x Mich.75-2
21	(" ") x Mich.75-3
22	(" ") x Mich.75-4
23	(A619 x C123) x Oh 564
24	(" ") x Oh 565
25	(" ") x Oh 566
26	(" ") x Oh 567
27	(" ") x Oh 568
28	(" ") x E43-25 (Ind.)
29	(" ") x A71-9
30	(" ") x A71-11
31	(" ") x A71-18
32	(" ") x A73-1
33	(" ") x A73-2
34	(" ") x A73-3
35	(" ") x A73-4
36	(" ") x A73-5
37	(" ") x N 165
38	(" ") x Pa.71-59
39	(" ") x Pa.71-63
40	(" ") x Pa.71-69
41	(A619 x C123) x Mich. 75-1
42	(" ") x Mich. 75-2
43	(" ") x Mich. 75-3
44	(" ") x Mich. 75-4
45	Tester 2 = W64A x A632
46	Tester 2 = A619 x C123
47	Ohio M15
48	Ohio K24

Inbred	Predigree
Oh 564	Oh51A x Syn. = 9/16 Oh26, 1/16 Oh51, 5/16 = Oh51A, 1/16 = Oh56A
Oh 565	" "
Oh 566	" "
Oh 567	" "
Oh 568	" "
E43-25 (Ind.)	(R181B x Oh 43) S_{11}
A71-9	(W59M x Hy)Hy^3
A71-11	(MS1334 x L317)$L317^2$
A71-18	(A509 x C103)$C103^2$
A73-1	(A509 x C.1. 21E)C.1. $21E^2$
A73-2	(A509 x H51)$H51^2$
A73-3	(W59M x H51)$H51^2$
A73-4	(A509 x H52)$H52^2$
A73-5	(A554 x H61)$H61^2$
N165	Hazen Yellow O.P.
Pa.71-59	CH_9 x (C.1.29 x Tr)Tr
Pa.71-63	(M14 x K155) TR][(M14 x K155)WF9 x (TR x C.1. 28A)]
Pa.71-69	CH157 x PPP (K64 x Mex.155)
Mich.75-1	(L317 x MS211) x 8670
Mich.75-2	MS201 x 8670
Mich.75-3	(Ferden O.P. F36 x F53) x 8670
Mich.75-4	MS153 x MS68

22 inbreds x 2 tester	=	44 entries
2 testers	=	2 entries
2 check hybrids	=	2 entries
TOTAL	=	48 entries

L. F. Bauman
E. C. Rossman
D. B. Shank
J. H. Lonnquist, Chairman

Table 14
Summary of line prepotencies for the regional 400-600 Maturity 3-way trials, 1974

		Yield Q/Ha			Mois	Lodging Stk	Lodging Rt	Ear Ht	Smut
		Means	T1	T2	%	%	%	cm	%
1	PA,70-27	69	68	69	23	10	8	90	3
2	PA,70-29	69	70	67	25	8	5	88	8
3	PA,70-30	65	63	66	24	11	9	81	3
4	W406	72	76	68	25	4	5	94	3
5	W438	70	67	72	23	10	17	88	1
6	W462	74	75	73	24	7	9	95	1
7	W729D	65	66	63	21	5	6	81	0
8	N143	63	60	65	23	7	5	94	0
9	N159	61	55	67	23	5	7	87	5
10	N160	61	62	59	24	8	8	88	2
11	E43-26(IND)	64	71	56	25	7	6	84	2
12	OH560	67	65	68	22	7	6	97	2
13	OH561	71	69	72	23	6	6	93	1
14	OH562	70	68	71	24	4	5	86	2
15	OH563	68	66	70	24	5	3	85	2
16	SDP254	55	46	63	23	7	6	83	3
17	MICH 74-1	59	63	54	23	15	10	82	4
18	MICH 74-2	58	59	56	24	6	4	77	1
19	MICH 74-3	70	65	74	27	1	5	91	2
20	MICH 74-4	60	61	58	22	13	9	87	3
MEANS		65	65	66	23	7	7	87	2

T1 = W64A · A632

T2 = A619 · C123

Summary of 1974 Uniform Regional 400-600 Maturity 3-way Tests

Table 14. (Con't)

		(A) Yield Q/Ha	(A) Mois %	(A) Lodging Stk %	(B) Lodging Rt %	(C) E Ht cm	(D) Smut %
1	(W64A,A632)XPA, 70-27	68	22	7	12	94	0
2	(W64A,A632)XPA, 70-29	70	22	7	4	89	1
3	(W64A,A632)XPA, 70-30	63	23	7	9	82	6
4	(W64A,A632)XW406	76	24	3	4	102	3
5	(W64A,A632)XW438	67	22	5	17	91	0
6	(W64A,A632)XW462	75	23	6	7	100	0
7	(W64A,A632)XW729D	66	20	4	6	87	0
8	(W64A,A632)XN143	60	22	3	7	99	0
9	(W64A,A632)XN159	55	21	5	7	95	2
10	(W64A,A632)XN160	62	22	4	9	92	3
11	(W64A,A632)XE43-26(IND)	71	23	3	7	92	4
12	(W64A,A632)XOH560	65	21	5	6	100	4
13	(W64A,A632)XOH561	69	21	4	6	97	1
14	(W64A,A632)XOH562	68	23	2	5	91	1
15	(W64A,A632)XOH563	66	23	3	4	92	3
16	(W64A,A632)XSDP254	46	22	6	6	83	0
17	(W64A,A632)XMICH 74-1	63	21	11	10	94	0
18	(W64A,A632)XMICH 74-2	59	23	5	4	81	0
19	(W64A,A632)XMICH 74-3	65	25	1	7	92	3
20	(W64A,A632)XMICH 74-4	61	21	7	9	93	2
21	(A619,C123)XPA,70-27	69	24	13	4	86	5
22	(A619,C123)XPA,70-29	67	27	8	6	87	15
23	(A619,C123)XPA,70-30	66	25	15	9	80	0
24	(A619,C123)XW406	68	25	5	6	86	2
25	(A619,C123)XW438	72	23	14	16	84	1
26	(A619,C123)XW462	73	25	8	10	89	1
27	(A619,C123)XW729D	63	21	6	6	75	0
28	(A619,C123)XN143	65	24	10	3	88	0
29	(A619,C123)XN159	67	24	4	7	89	7
30	(A619,C123)XN160	59	25	11	7	84	0
31	(A619,C123)XE43-26(IND)	56	26	10	5	76	0
32	(A619,C123)XOH560	68	23	9	5	94	0
33	(A619,C123)XOH561	72	24	8	5	89	0
34	(A619,C123)XOH562	71	25	5	5	80	3
35	(A619,C123)XOH563	70	25	7	2	80	1
36	(A619,C123)XSDP254	63	24	8	6	83	5
37	(A619,C123)XMICH 74-1	54	24	18	10	70	8
38	(A619,C123)XMICH 74-2	56	25	7	3	73	1
39	(A619,C123)XMICH 74-3	74	28	1	3	89	1
40	(A619,C123)XMICH 74-4	58	23	19	9	81	4
41	W64A,A632	72	21	4	3	95	1
42	A619,C123	57	26	11	5	77	4
43	OH M15	58	23	13	13	98	1
44	OH K24	52	24	9	8	85	1
MEANS		65	23	7	7	88	2

(A) Yield, moisture, Stk lodged (%) reported at all loc's.
(B) Root Lodge (%) reported at MN, IA, SD, OH, IN, MI.
(C) Ear Ht. (cm) reported at WI, MN, OH, IN, PA.
(D) Smut (%) reported at OH.

Yield of 1974 400-600 Maturity Group 3-way Tests by Individual States
(Quintals/Hectare)

Table 14. (Cont'd)

	WI	NE	MN	IA	SD	OH	IN	MI	PA
1 (W64A,A632)XPA. 70-27	77	97	57	62	44	72	78	61	67
2 (W64A,A632)XPA. 70-29	82	100	64	66	31	72	83	65	63
3 (W64A,A632)XPA. 70-30	69	85	56	58	34	74	63	66	60
4 (W64A,A632)XW406	83	101	79	68	41	82	89	63	78
5 (W64A,A632)XW438	75	90	59	64	37	74	59	69	73
6 (W64A,A632)XW462	90	97	73	71	29	90	72	61	92
7 (W64A,A632)XW729D	71	90	66	64	36	73	57	70	67
8 (W64A,A632)XN143	65	87	60	55	36	63	68	57	47
9 (W64A,A632)XN159	57	74	52	54	31	63	53	55	52
10 (W64A,A632)XN160	62	85	63	54	34	76	69	58	60
11 (W64A,A632)XE43-26(IND)	73	107	66	63	32	77	73	61	83
12 (W64A,A632)XOH560	70	85	64	58	35	75	75	62	63
13 (W64A,A632)XOH561	70	92	67	64	39	66	82	74	68
14 (W64A,A632)XOH562	62	94	58	60	38	89	85	62	68
15 (W64A,A632)XOH563	65	91	60	60	38	74	80	60	67
16 (W64A,A632)XSDP254	51	73	45	41	20	47	38	52	51
17 (W64A,A632)XMICH 74-1	72	83	59	59	41	62	65	70	59
18 (W64A,A632)XMICH 74-2	66	78	53	58	29	48	72	69	62
19 (W64A,A632)XMICH 74-3	66	95	60	56	41	67	79	67	54
20 (W64A,A632)XMICH 74-4	70	81	65	57	35	65	52	66	58
21 (A619,C123)XPA.70-27	67	83	66	67	40	67	84	83	67
22 (A619,C123)XPA.70-29	71	103	64	68	34	59	69	67	70
23 (A619,C123)XPA.70-30	81	89	60	72	38	86	27	73	70
24 (A619,C123)XW406	74	88	65	68	31	77	57	75	73
25 (A619,C123)XW438	77	101	68	69	47	71	45	86	85
26 (A619,C123)XW462	87	106	74	76	29	72	67	66	81
27 (A619,C123)XW729D	81	74	68	57	34	67	30	84	68
28 (A619,C123)XN143	69	87	58	64	31	74	78	62	58
29 (A619,C123)XN159	75	88	58	63	33	75	69	84	61
30 (A619,C123)XN160	65	82	56	34	40	65	71	67	55
31 (A619,C123)XE43-26(IND)	63	94	50	70	16	58	48	53	53
32 (A619,C123)XOH560	79	87	64	79	36	73	60	65	71
33 (A619,C123)XOH561	81	89	72	75	35	86	58	76	77
34 (A619,C123)XOH562	70	85	67	64	40	86	83	74	73
35 (A619,C123)XOH563	70	91	64	66	37	78	81	79	64
36 (A619,C123)XSDP254	70	83	64	61	39	57	67	75	54
37 (A619,C123)XMICH 74-1	59	65	54	53	29	51	43	70	61
38 (A619,C123)XMICH 74-2	55	70	46	53	19	61	64	76	58
39 (A619,C123)XMICH 74-3	81	90	75	74	46	83	68	76	72
40 (A619,C123)XMICH 74-4	76	82	61	60	33	58	19	72	58
41 W64A,A632	79	99	71	68	45	78	78	72	60
42 A619,C123	59	88	63	64	28	67	21	60	60
43 OH M15	70	76	57	50	21	60	58	68	59
44 OH K24	58	89	50	64	22	36	49	52	50
MEANS	71	88	62	62	34	69	63	68	65

Table 14. (Cont'd)

		WI	NE	MN	IA	SD	OH	IN	MI	PA
1	(W64A,A632)XPA. 70-27	22	12	24	20	21	25	20	26	30
2	(W64A,A632)XPA. 70-29	24	10	18	19	21	26	21	26	30
3	(W64A,A632)XPA. 70-30	26	13	23	21	22	27	20	25	29
4	(W64A,A632)XW406	26	12	23	22	25	31	20	29	30
5	(W64A,A632)XW438	23	10	21	21	22	28	20	26	29
6	(W64A,A632)XW462	22	12	23	21	23	27	20	26	29
7	(W64A,A632)XW729D	20	8	18	21	19	25	18	23	29
8	(W64A,A632)XN143	24	13	19	18	20	27	19	27	31
9	(W64A,A632)XN159	23	9	18	19	20	26	19	24	30
10	(W64A,A632)XN160	23	10	19	21	21	27	21	25	29
11	(W64A,A632)XE43-26(IND)	26	14	20	21	21	28	20	28	31
12	(W64A,A632)XOH560	22	12	19	18	21	25	20	26	30
13	(W64A,A632)XOH561	24	13	19	17	21	26	19	24	29
14	(W64A,A632)XOH562	25	14	22	21	22	28	20	28	30
15	(W64A,A632)XOH563	26	12	22	22	22	27	21	28	30
16	(W64A,A632)XSDP254	26	11	19	21	20	25	22	26	30
17	(W64A,A632)XMICH 74-1	23	10	21	21	19	25	19	24	30
18	(W64A,A632)XMICH 74-2	24	11	20	22	24	28	20	28	30
19	(W64A,A632)XMICH 74-3	28	14	29	23	23	30	21	28	32
20	(W64A,A632)XMICH 74-4	22	8	20	19	23	25	21	23	28
21	(A619,C123)XPA.70-27	28	12	24	25	25	28	21	26	31
22	(A619,C123)XPA.70-29	32	15	28	26	24	32	20	31	33
23	(A619,C123)XPA.70-30	29	12	30	25	22	29	20	28	31
24	(A619,C123)XW406	29	13	24	24	23	30	20	30	32
25	(A619,C123)XW438	27	10	23	22	21	28	20	26	30
26	(A619,C123)XW462	28	13	27	24	24	28	21	28	31
27	(A619,C123)XW729D	23	9	21	20	19	25	20	23	29
28	(A619,C123)XN143	27	15	23	22	22	28	21	29	31
29	(A619,C123)XN159	27	13	21	22	24	29	21	28	32
30	(A619,C123)XN160	28	12	25	26	23	28	20	28	33
31	(A619,C123)XE43-26(IND)	31	16	26	26	22	28	21	30	35
32	(A619,C123)XOH560	26	12	24	22	22	26	20	29	29
33	(A619,C123)XOH561	26	11	22	24	23	28	20	29	30
34	(A619,C123)XOH562	27	14	23	24	23	29	21	29	32
35	(A619,C123)XOH563	29	14	24	26	23	29	22	27	31
36	(A619,C123)XSDP254	29	11	24	24	22	27	22	26	30
37	(A619,C123)XMICH 74-1	29	11	26	25	21	27	21	28	31
38	(A619,C123)XMICH 74-2	30	13	23	24	25	28	21	29	31
39	(A619,C123)XMICH 74-3	31	19	32	26	26	34	22	28	34
40	(A619,C123)XMICH 74-4	26	10	24	21	21	27	19	24	31
41	W64A,A632	21	9	19	18	22	26	19	24	30
42	A619,C123	31	14	32	26	23	29	20	27	33
43	OH M15	25	11	24	22	24	27	21	25	28
44	OH K24	27	11	24	22	24	27	21	28	30
MEANS		26	12	23	22	22	28	20	27	31

Stalk Lodging of 1974 400-600 Maturity Group 3-way Tests by Individual States

Table 14. (Cont'd)

		WI	NE	MN	IA	SD	OH	IN	MI	PA
1	(W64A,A632)XPA, 70-27	10	10	6	1	7	8	10	0	10
2	(W64A,A632)XPA, 70-29	14	8	13	2	5	11	3	1	2
3	(W64A,A632)XPA, 70-30	36	3	8	2	5	3	5	2	1
4	(W64A,A632)XW406	1	10	3	1	2	0	2	2	2
5	(W64A,A632)XW438	6	14	6	1	7	5	2	2	2
6	(W64A,A632)XW462	8	7	14	0	6	10	4	1	2
7	(W64A,A632)XW729D	6	7	8	1	0	1	5	2	2
8	(W64A,A632)XN143	5	7	4	1	0	1	9	1	0
9	(W64A,A632)XN159	12	9	4	0	0	8	6	2	2
10	(W64A,A632)XN160	6	20	5	0	0	2	1	1	0
11	(W64A,A632)XE43-26(IND)	0	5	2	1	2	6	3	3	2
12	(W64A,A632)XOH560	7	7	17	0	0	1	4	2	5
13	(W64A,A632)XOH561	0	2	21	0	3	3	3	0	1
14	(W64A,A632)XOH562	2	5	6	0	1	1	0	1	0
15	(W64A,A632)XOH563	6	5	8	0	2	2	1	2	2
16	(W64A,A632)XSDP254	17	10	16	1	0	2	7	0	3
17	(W64A,A632)XMICH 74-1	29	5	23	1	13	9	13	4	3
18	(W64A,A632)XMICH 74-2	16	10	6	0	2	4	0	1	2
19	(W64A,A632)XMICH 74-3	0	3	3	0	0	1	2	0	0
20	(W64A,A632)XMICH 74-4	15	3	9	6	11	5	6	4	2
21	(A619,C123)XPA,70-27	53	10	14	5	1	10	18	3	2
22	(A619,C123)XPA,70-29	17	5	18	1	7	14	5	1	2
23	(A619,C123)XPA,70-30	72	14	12	5	7	13	7	1	5
24	(A619,C123)XW406	3	8	8	3	5	17	1	1	0
25	(A619,C123)XW438	23	7	39	2	21	24	6	2	2
26	(A619,C123)XW462	9	5	17	4	9	19	5	0	7
27	(A619,C123)XW729D	36	5	2	2	0	2	5	2	2
28	(A619,C123)XN143	49	3	17	1	3	4	9	1	0
29	(A619,C123)XN159	6	5	7	1	0	5	6	3	0
30	(A619,C123)XN160	34	22	16	2	1	6	10	1	4
31	(A619,C123)XE43-26(IND)	42	2	7	1	20	10	7	1	4
32	(A619,C123)XOH560	24	8	16	2	2	18	5	1	2
33	(A619,C123)XOH561	22	7	19	1	1	8	7	2	1
34	(A619,C123)XOH562	12	7	7	0	3	6	6	0	1
35	(A619,C123)XOH563	38	3	10	0	2	2	7	0	2
36	(A619,C123)XSDP254	37	3	8	0	0	8	15	2	0
37	(A619,C123)XMICH 74-1	57	17	42	9	9	22	4	2	3
38	(A619,C123)XMICH 74-2	10	12	25	4	2	8	0	1	0
39	(A619,C123)XMICH 74-3	3	4	2	0	0	0	1	0	0
40	(A619,C123)XMICH 74-4	41	22	20	19	21	42	3	2	5
41	W64A,A632	8	8	10	1	0	0	12	0	1
42	A619,C123	11	12	46	2	1	20	2	1	1
43	OH M15	31	20	8	8	17	19	3	4	3
44	OH K24	24	5	14	1	2	24	5	1	3
MEANS		20	8	13	2	5	0	0	0	0

Table 14. (Cont'd)

		MN	IA	SD	OH	IN	MI
1	(W64A,A632)XPA, 70-27	16	1	51	0	4	0
2	(W64A,A632)XPA, 70-29	0	0	25	0	1	0
3	(W64A,A632)XPA, 70-30	8	0	39	0	5	0
4	(W64A,A632)XW406	2	0	15	0	3	0
5	(W64A,A632)XW438	18	0	64	0	15	2
6	(W64A,A632)XW462	10	1	22	2	6	0
7	(W64A,A632)XW729D	7	0	20	0	8	1
8	(W64A,A632)XN143	9	0	29	0	1	0
9	(W64A,A632)XN159	3	0	23	2	9	2
10	(W64A,A632)XN160	12	0	36	0	3	0
11	(W64A,A632)XE43-26(IND)	12	0	24	0	6	0
12	(W64A,A632)XOH560	5	0	25	0	3	0
13	(W64A,A632)XOH561	2	0	27	0	7	0
14	(W64A,A632)XOH562	9	0	21	0	1	0
15	(W64A,A632)XOH563	4	0	17	0	2	0
16	(W64A,A632)XSDP254	4	0	26	0	5	0
17	(W64A,A632)XMICH 74-1	11	0	34	3	11	0
18	(W64A,A632)XMICH 74-2	0	0	16	1	5	0
19	(W64A,A632)XMICH 74-3	1	0	38	0	1	0
20	(W64A,A632)XMICH 74-4	3	1	34	2	12	0
21	(A619,C123)XPA,70-27	1	0	14	0	7	0
22	(A619,C123)XPA,70-29	14	0	12	0	7	0
23	(A619,C123)XPA,70-30	5	0	23	2	22	0
24	(A619,C123)XW406	2	0	12	0	22	0
25	(A619,C123)XW438	11	0	58	5	19	1
26	(A619,C123)XW462	11	1	29	0	16	0
27	(A619,C123)XW729D	8	0	19	4	3	0
28	(A619,C123)XN143	0	0	14	0	2	0
29	(A619,C123)XN159	8	0	25	4	7	0
30	(A619,C123)XN160	9	0	24	0	7	0
31	(A619,C123)XE43-26(IND)	10	0	10	0	9	1
32	(A619,C123)XOH560	7	0	8	0	15	2
33	(A619,C123)XOH561	2	0	15	0	15	0
34	(A619,C123)XOH562	7	0	19	3	2	0
35	(A619,C123)XOH563	0	0	10	0	2	0
36	(A619,C123)XSDP254	0	0	28	4	5	0
37	(A619,C123)XMICH 74-1	0	0	31	5	25	0
38	(A619,C123)XMICH 74-2	4	0	8	0	6	0
39	(A619,C123)XMICH 74-3	0	0	18	0	1	0
40	(A619,C123)XMICH 74-4	0	0	19	8	25	0
41	W64A,A632	3	0	14	0	1	0
42	A619,C123	0	0	9	0	19	0
43	OH M15	26	1	31	0	17	1
44	OH K24	6	2	12	6	19	0
MEANS		6	0	24	1	0	0

Table 14. (Cont'd)

		WI	MN	OH	IN	PA
1	(W64A,A632)XPA, 70-27	115	81	104	84	84
2	(W64A,A632)XPA, 70-29	110	76	91	81	87
3	(W64A,A632)XPA, 70-30	100	66	95	76	74
4	(W64A,A632)XW406	125	91	104	91	98
5	(W64A,A632)XW438	120	79	85	84	86
6	(W64A,A632)XW462	125	91	107	86	92
7	(W64A,A632)XW729D	110	66	95	79	84
8	(W64A,A632)XN143	115	89	101	94	98
9	(W64A,A632)XN159	95	81	89	79	83
10	(W64A,A632)XN160	105	81	101	84	88
11	(W64A,A632)XE43-26(IND)	110	74	97	81	100
12	(W64A,A632)XOH560	120	81	102	86	109
13	(W64A,A632)XOH561	115	84	100	89	97
14	(W64A,A632)XOH562	110	76	94	84	91
15	(W64A,A632)XOH563	110	74	90	84	100
16	(W64A,A632)X8DP254	110	66	76	79	84
17	(W64A,A632)XMICH 74-1	115	76	107	79	93
18	(W64A,A632)XMICH 74-2	90	66	76	81	90
19	(W64A,A632)XMICH 74-3	120	79	97	86	77
20	(W64A,A632)XMICH 74-4	110	79	96	84	98
21	(A619,C123)XPA,70-27	105	74	85	84	84
22	(A619,C123)XPA,70-29	105	81	87	81	83
23	(A619,C123)XPA,70-30	100	74	86	71	70
24	(A619,C123)XW406	105	74	92	76	84
25	(A619,C123)XW438	100	51	100	79	92
26	(A619,C123)XW462	115	76	91	81	84
27	(A619,C123)XW729D	80	64	85	66	81
28	(A619,C123)XN143	115	71	93	84	76
29	(A619,C123)XN159	100	69	104	81	89
30	(A619,C123)XN160	100	69	83	81	89
31	(A619,C123)XE43-26(IND)	80	71	84	69	78
32	(A619,C123)XOH560	110	84	97	84	96
33	(A619,C123)XOH561	100	84	92	84	83
34	(A619,C123)XOH562	95	69	89	76	72
35	(A619,C123)XOH563	100	64	82	76	78
36	(A619,C123)X8DP254	105	71	80	79	82
37	(A619,C123)XMICH 74-1	75	56	81	69	71
38	(A619,C123)XMICH 74-2	80	58	80	71	78
39	(A619,C123)XMICH 74-3	100	79	97	76	91
40	(A619,C123)XMICH 74-4	95	69	85	74	81
41	W64A,A632	115	81	102	84	92
42	A619,C123	85	69	89	71	72
43	OH M15	115	86	112	86	91
44	OH K24	100	74	93	76	81
MEANS		105	74	93	80	86

REPORT OF THE 700-800
MATURITY SUB-COMMITTEE

Seed inventory of single crosses made up in 1974 for 1975 testing with the three testers N132, B73, and Mo17 is shown in the next table.

Results from the 1974 trials are shown in tables immediately following the inventory table.

W. A. Compton, Chairman
W. R. Findley
P. L. Crane
W. A. Russell

Table 15. 1974 REGIONAL 700-800 MATURITY INVENTORY

Line	N132 Tester	B73 Tester	Mo17 Tester
N139	ok	ok	600 K
N161	ok	ok	520 K
N162	ok	ok	ok
N163	ok	ok	ok
Pa.71-1	ok	ok	ok
Pa.71-8	280 K	1000 K	160 K
Pa.71-9	ok	ok	ok
Pa.71-36	ok	ok	800 K
Oh.516	ok	ok	520 K
R 806	no seed	seed from Ill.	seed from Ill.
B76	ok	ok	ok
B79	ok	ok	400 K
Ia.73:1133	ok	ok	ok
Ia.73:1152	ok	ok	ok
Ia.73:1226	ok	ok	360 K
S.Syn.A-355	ok	ok	ok
Mo.17A	ok	ok	
Mo.17B	ok	ok	
Mo.17C	ok	ok	
Mo.17D	ok	1200 K	
Mo.17H	ok	ok	
Mo.17I	ok	ok	
Oh.512	ok	ok	
Oh.517	ok	ok	

All marked ok have at least 1500 K.

Table 16. Yields in quintals/hectare for the uniform regional three-way hybrids of 700-800 maturity, by states.

Pedigree	Ia.	Ind.	Mo.	Nebr.	Ohio	Pa.	Mean
N611(N7AxMo.17)(CK Hybrid)	55.6	89.1	52.5	111.3	72.6	90.4	78.6
N612(N31xN132)(" ")	56.5	77.2	58.8	107.8	75.6	86.4	77.1
(N7AxN7B) x Mo.72-73W:57-1	46.6	94.2	48.1	117.6	75.0	77.8	76.5
(") x " :60-1	48.1	75.3	43.8	111.3	65.5	80.2	70.7
(") x " :62-1	43.5	76.0	47.5	109.0	77.8	76.0	71.6
(") x Mo.17	52.5	89.8	51.2	110.3	67.0	86.8	76.3
(") x B77	40.5	75.3	50.0	108.6	77.2	102.0	75.6
(") x B78	48.6	74.1	43.8	105.6	71.8	86.2	71.7
(") x E2891-1	41.5	76.0	41.9	100.6	62.1	70.3	65.4
(") x E2891-2	40.4	79.1	43.1	93.4	63.2	79.5	66.4
(") x E2891-3	38.9	67.2	47.5	89.1	57.6	75.2	62.6
(") x E43-8	47.7	73.4	50.0	94.1	70.6	76.8	68.8
(") x Pa.71-24	59.7	77.2	51.2	97.6	73.9	99.7	76.5
(") x Pa.71-27	43.5	73.4	49.4	113.5	75.9	90.1	74.3
(") x Pa.71-41	48.2	81.6	45.0	88.1	61.8	91.0	69.3
(") x Pa.71-35	46.0	69.0	44.4	103.4	65.1	87.3	69.2
(") x N156	54.3	82.8	47.5	108.1	73.7	90.7	76.2
(") x N157	50.5	69.0	47.5	116.9	72.8	94.5	75.2
(") x N158	52.8	80.3	48.1	111.6	70.5	92.0	75.9
Mean	48.2	77.9	48.0	105.2	70.0	85.9	
N611 (Check)	58.1	86.6	58.8	115.9	78.0	90.4	81.3
N612 (")	56.9	79.7	48.1	118.6	79.0	86.4	78.1
(H84xB37) x Mo.72-73W:57-1	43.0	83.5	52.5	106.6	72.7	79.8	73.0
(") x Mo.72-73W:60-1	49.7	75.3	51.9	100.1	69.9	85.8	72.1
(") x Mo.72-73W:62-1	42.2	87.9	50.0	116.5	64.6	83.3	74.1
(") x Mo.17	53.1	86.6	50.6	107.2	71.3	86.5	74.2
(") x B77	49.2	84.7	59.4	103.1	83.7	96.9	79.5
(") x B78	55.3	81.0	50.6	101.7	84.3	89.3	77.0
(") x E2891-1	51.7	84.1	50.0	96.8	74.3	74.3	71.9
(") x E2891-2	47.8	86.0	46.3	93.4	69.3	85.7	71.4
(") x E2891-3	54.1	75.3	48.1	101.2	56.9	90.6	71.0
(") x E43-8	50.7	75.3	53.1	98.2	75.4	94.1	74.5
(") x Pa.71-24	52.2	84.1	52.5	96.8	67.0	85.1	72.9
(") x 71-27	44.4	81.6	47.5	105.8	80.4	83.0	73.8
(") x 71-41	40.8	84.1	48.8	85.5	66.1	82.8	68.0
(") x 71-35	41.0	78.5	40.0	88.4	63.3	79.9	65.2
(") x N156	48.3	77.8	43.1	109.7	66.6	79.2	70.8
(") x N157	48.0	83.5	48.8	98.9	77.8	82.9	73.3
(") x N158	50.7	74.1	44.4	110.9	77.0	86.7	74.0
Mean	49.3	81.6	49.7	102.9	72.5	85.4	

Table 17. Summary of data obtained from uniform regional three-way tests of 700-800 maturity hybrids from participating states, 1974.

Pedigree	Yield Q/ha (1)	Mois- ture % (2)	Lodging % Root (3)	Lodging % Stalk (4)	Dropped ears (5)	Ear Ht. in c.m. (6)	Plant Ht. in c.m. (7)	% Stand (8)	Ear Ht. 1-5 (9)	Ears /100 Plts. (10)	Days to Mid-Silk (11)
N611(N7AxMo.17)(Check Hybrid)	78.6	24.8	1.2	7.9	0	99.0	196.2	96.6	3.0	100	83
N612(N31xN132)(" ")	77.1	25.9	8.3	3.7	0	96.2	203.0	95.9	3.0	93	85
(N7AxN7B) x Mo.72-73W:57-1	76.5	28.3	4.2	7.0	0	105.8	217.1	96.2	3.0	103	87
(") x Mo.72-73W:60-1	70.7	24.9	19.6	14.5	2.1	95.2	211.1	97.9	3.0	95	84
(") x Mo.72-73W:62-1	71.6	26.6	8.0	12.2	1.1	103.2	224.4	96.0	3.0	98	85
(") x Mo.17	76.3	24.1	1.8	6.4	0.6	99.4	208.5	94.8	2.7	95	85
(") x B77	75.6	28.5	12.6	4.1	0	101.9	218.6	94.8	3.0	111	87
(") x B78	71.7	30.4	19.0	2.9	0	94.4	198.6	96.7	3.0	99	89
(") x E2891-1	65.4	27.1	12.8	4.1	1.1	92.5	190.7	96.0	2.7	94	87
(") x E2891-2	66.4	28.1	9.7	2.4	0	89.7	198.8	96.1	2.7	96	88
(") x E2891-3	62.6	26.9	5.1	3.9	0	84.2	189.2	95.2	2.3	91	90
(") x E43-8	68.8	25.3	4.6	3.7	0.6	80.2	183.6	94.2	2.0	96	85
(") x Pa.71-24	76.5	22.5	30.6	6.5	1.7	101.5	219.0	95.2	3.0	96	87
(") x Pa.71-27	74.3	29.6	1.7	5.3	0	104.4	188.6	95.5	3.0	109	87
(") x Pa.71-41	69.3	26.4	38.2	8.2	0	94.4	208.2	95.6	2.7	98	85
(") x Pa.71-35	69.2	25.4	34.5	25.3	0	93.2	219.7	95.4	3.0	96	84
(") x N156	76.2	29.3	14.8	12.0	2.3	105.7	219.2	96.2	3.0	103	90
(") x N157	75.2	28.7	12.8	11.3	3.3	97.8	220.3	96.5	3.0	89	87
(") x N158	75.9	28.7	9.2	8.2	0	99.6	210.2	93.5	2.7	97	87
Means	72.5	26.9	13.1	7.9	0.7	96.8	206.6	95.7	2.8	98	86

Table 17 (Concluded)

Pedigree	Yield Q/ha (1)	Mois- ture % (2)	Lodging % Root (3)	Lodging % Stalk (4)	Dropped ears (5)	Ear Ht.in c.m. (6)	Plant Ht.in c.m. (7)	% Stand (8)	Ear Ht. 1-5 (9)	Ears /100 Plts. (10)	Days to Mid- Silk (11)
N611 (Check)	81.3	24.5	1.7	5.6	0	100.9	196.2	97.8	3.0	97	83
N612 (")	78.1	26.9	15.8	3.1	0	89.9	203.0	95.9	2.7	97	83
(H84xB37) x Mo.72-73W:57-1	73.0	27.4	20.6	6.8	1.9	104.5	228.2	95.9	3.0	96	87
(") x Mo.72-73W:60-1	72.1	24.8	16.9	11.3	0.6	97.7	219.7	95.9	3.0	94	84
(") x Mo.72-73W:62-1	74.1	26.6	15.6	6.2	1.7	99.4	213.6	96.7	3.0	94	89
(") x Mo.17	74.2	25.3	12.3	4.7	0.6	100.4	215.7	93.8	3.0	95	85
(") x B77	79.5	25.9	9.2	4.0	2.0	95.3	241.9	96.7	3.0	103	83
(") x B78	77.0	28.8	17.9	5.1	1.0	98.4	230.8	97.2	3.0	100	86
(") x E2891-1	71.9	25.4	10.3	2.2	0	101.1	200.5	97.8	2.7	92	84
(") x E2891-2	71.4	26.1	10.7	2.3	0	93.8	220.1	97.6	2.7	93	85
(") x E2891-3	71.0	25.9	3.0	2.3	0	89.8	200.4	95.8	2.0	87	88
(") x E43-8	74.5	24.6	6.2	18.2	0	79.0	201.8	95.6	2.0	100	83
(") x Pa.71-24	72.9	23.6	28.9	2.5	0.6	103.5	226.4	96.3	2.7	94	86
(") x Pa.71-27	73.8	28.4	2.8	4.2	0	98.0	198.5	98.8	3.0	95	84
(") x Pa.71-41	68.0	27.0	40.2	5.3	0	88.4	204.4	96.6	2.7	93	84
(") x Pa.71-35	65.2	27.2	39.5	13.3	0	99.3	227.3	95.1	3.0	87	86
(") x N156	70.8	29.4	12.6	6.7	2.3	101.3	209.4	95.5	2.7	95	87
(") x N157	73.3	29.0	5.8	2.8	0.8	96.2	222.6	95.8	2.7	100	85
(") x N158	74.0	29.8	14.2	5.2	0	99.7	217.8	95.8	2.7	92	86
Means	73.5	26.7	15.0	5.9	0.6	96.7	214.6	96.4	2.8	95	85

States providing data:

(1) Ia., Ind., Mo., Ne., Ohio, Pa.
(2) Ia., Ind., Mo., Ne., Ohio, Pa.
(3) Ia., Ind., Mo., Ohio.
(4) Ia., Ind., Mo., Ne., Ohio, Pa.
(5) Ia., Mo., Ne.
(6) Ind., Mo., Ohio, Pa.
(7) Pa.
(8) Ia., Ind., Mo., Ohio
(9) Ia.
(10) Ohio
(11) Ohio

Report of the Subcommittee on Uniformity Tests in the 900 Maturity Group

The 900 Maturity Group did not have any trials in 1974 and none was planned for 1975. There was a motion by M. S. Zuber, seconded by C. E. Wassom that the Subcommittee on Uniformity Tests in the 900 Maturity Group be disbanded. Motion carried to abandon the 900 Maturity Group Subcommittee.

Report of the Subcommittee on Opaque Tests
No tests in 1974 and none planned for 1975

Dr. A. L. Hooker of the University of Illinois distributed a report on the field reactions to leaf diseases for a group of lines at Urbana, Illinois in 1974. Data are given in Table 18.

Table 18.

Field reactions to northern leaf blight, Helminthosporium turcicum (NLB), southern leaf blight, Helminthosporium maydis race 0 (SLB), Helminthosporium carbonum (HLS), and anthracnose, Colletotrichum graminicola were determined for a number of inbred lines following artificial inoculation. Data were taken on lesion size in m.m. for SLB and percentage of plant area infected for all diseases. The summer season was dry so early season disease development was slow. The presence (+) of Stewart's bacterial leaf blight was noted on several lines after they had been naturally infected. Planting dates NLB 51/, SLB 5/2, rest 6/1.

	Da. to	NLB	SLB 8/20		HLS	Anthracnose		Stewarts
Line	Silk	% 8/21	Lesion Size	%	% 9/13	% 8/26	% 9/18	LB
Mo1W	88	18	10	25	5	10	5	
F2	76	80	14	60	25	60	100	+
FR2A	95	4	6	8	5	5	5	
FR2B	96	12	6	10	3	15	15	
FR3	100	38	5	3	5	-	-	
FR4A	86	18	8	18	5	20	10	
FR4C	88	8	6	8	5	10	5	
F7	74	80	-	-	-	90	100	
Mo7	101	8	8	12	10	5	5	
T8	100	10	4	3	5	5	5	
WF9	84	38	12	40	15	5	10	
FR13	92	15	10	5	5	10	10	
B14A	87	38	4	15	20	5	10	+
FR15	89	12	14	35	10	10	10	+
FR15A	88	12	8	12	15	10	10	
SD15	81	5	8	15	25	5	15	
Mo17	88	15	3	8	10	5	5	
F19	79	28	4	12	25	15	40	+
CI21E	105	10	4	5	10	10	10	
Va26	82	20	5	15	15	20	20	
N28	87	35	13	28	25	10	20	+
33-16N	92	15	5	8	10	10	10	
Va35	89	8	3	5	5	5	5	
B37	86	22	3	5	15	10	15	
W37A	-	28	9	-	35	15	20	
Oh43	82	20	4	20	10	5	10	
CI44	103	8	3	8	10	10	5	
H49	95	18	6	12	10	10	5	
Va50	80	18	5	8	5	20	20	
Oh51A	79	10	9	25	10	10	15	+

Table 18. (Cont'd)

Line	Da. to Silk	NLB % 8/21	SLB Lesion Size	SLB 8/20 %	HLS % 9/13	Anthracnose % 8/26	Anthracnose % 9/18	Stewarts LB
K55	88	12	10	22	20	20	20	
B57	100	8	7	15	5	-	-	
Va59	83	5	3	5	5	5	5	
W59E	73	32	6	15	25	60	100	
W59M	84	18	13	30	15	40	100	
H60	89	5	8	18	5	5	1	
Va60	96	8	3	4	3	5	5	
W61	77	48	6	12	15	5	10	+
CI64	100	4	4	4	5	5	1	
K64	100	22	7	12	15	20	10	
W64A	81	35	14	78	40	3	10	
W64B	80	28	11	65	35	10	60	
CI66	108	3	4	5	5	20	5	
B68	93	25	5	8	10	5	10	
B73	86	22	12	30	25	10	20	+
B76	83	38	6	12	15	15	15	
H84	88	12	3	4	5	5	10	
Pa91	92	18	6	15	5	1	3	
H93	87	20	6	12	15	15	15	
H95	88	10	5	10	3	10	5	
H96	87	8	9	15	3	15	10	
H98	83	15	12	28	15	20	10	
C103D	92	12	3	5	3	5	10	
CM109	73	85	8	35	30	20	100	+
T111	100	12	8	20	15	15	10	
W117	75	75	13	32	25	20	25	+
C123	82	8	10	35	25	3	15	
W153R	81	20	6	8	10	25	40	+
Q175	87	60	10	18	90	15	20	
R177	86	15	6	20	15	30	20	
W182B	71	45	12	28	15	10	30	
W182E	81	32	11	20	25	10	40	
Ky216	96	15	8	15	10	15	5	
Ky226	100	8	8	25	5	15	10	
Ky228	95	15	14	45	15	3	5	
T232	97	5	8	10	10	5	5	
A239	82	70	6	10	15	10	20	+
A251	81	50	9	15	15	15	30	
A257	87	42	11	32	20	25	30	
ND309	81	40	9	28	15	10	10	
W438	81	15	8	18	10	35	50	+
W513	75	82	14	55	40	50	90	+
Oh514	89	15	6	10	5	3	5	
F534	82	22	14	40	25	15	25	
Oh545	82	15	7	15	10	10	10	

Line	Da. to Silk	NLB % 8/21	SLB Lesion Size	SLB 8/20 %	HLS % 9/13	Anthracnose % 8/26	Anthracnose % 9/18	Stewarts LB
Oh551	82	5	8	15	5	-	-	
A554	75	40	13	62	20	10	30	
A556	80	85	11	28	30	20	25	
A619	82	23	6	15	15	5	10	
W629A	68	90	13	30	40	40	100	+
A631	77	48	12	28	15	5	10	+
A632	81	68	10	18	15	5	10	+
A634	82	62	12	28	20	15	10	+
A635	82	72	12	28	20	10	20	+
A636	80	52	8	10	15	5	15	+
A637	82	55	8	10	35	15	25	+
A638	81	18	12	20	20	15	30	
A640	76	55	13	45	40	20	25	+
A641	76	55	5	10	20	15	40	+
A648	83	48	12	32	20	25	80	+
A656	77	35	6	12	15	5	20	+
A659	87	42	14	50	30	10	15	
A660	81	20	10	25	15	15	10	
W727C	77	55	10	25	20	10	30	+
Pa762	85	8	2	5	3	20	10	
FR802W	96	8	9	18	3	15	5	
FR803W	82	30	12	48	20	10	15	
FR805W	94	5	6	10	10	10	5	

NEW BUSINESS

It was moved by R. J. Lambert to include industry representatives in all future NCR-2 meetings except for the interregional meetings or where operationally not feasible. Motion second by M. S. Zuber. Discussion followed concerning the size of the meetings if unlimited invitation. Also the meetings may be in conflict with the American Seed Trade Association (ASTA) meetings held in December. Most in attendance favored the procedures used this year in limiting the number invited to attend, but to insure representation among industry researchers. Motion failed. However, those in attendance thought similar procedures used for the 1975 NCR-2 meetings should be used in future years.

F. W. Smith, Administrative Advisor, emphasized that CSRS competitive grant askings were recommended for soybean research, environmental quality, pest management, forest and range management, food and nutrition, and genetic vulnerability. He offered any assistance for developing a regional proposal; e.g., genetic vulnerability. Smith suggested an ad hoc committee be established to study possibilities for competitive grant proposals on a regional basis. For inbreds the present subcommittee on 'Uniform Tests of Inbred Evaluation' could be expanded and increase the support of their activities for screening to include breeding populations.

It was moved by S. A. Eberhart that the subcommittee name be changed to 'Uniform Tests of Inbred and Breeding Population Evaluations'. Motion seconded by M. S. Zuber. Discussion on size and composition of committee and motion passed. F. W. Smith also suggested that more state people from NCR-2 should be included on the subcommittee. It was suggested that Musick, Chairman of NCR-46, and Hooker, NCR-25, be contacted to determine if they would be interested.

Motion by S. A. Eberhart that a new subcommittee be established on genetic vulnerability. Motion seconded by C. E. Wassom. After some discussion on objectives, purposes, and names for the new subcommittee, motion passed. Membership of the new subcommittee on genetic vulnerability was to be appointed by the executive committee.

Motion to adjourn M. S. Zuber. Motion seconded by J. W. Dudley and passed. Meeting adjourned at 11:05 a.m.

EXECUTIVE COMMITTEE MEETING

Motion by W. A. Compton and seconded by H. Z. Cross to nominate J. J. Mock as chairman of the 1976 NCR-2 meetings. Motion carried unanimously.

Executive committee appointed the following members to the Subcommittee on Genetic Vulnerability: W. A. Comptom, H. Z. Cross, A. R. Hallauer, J. H. Lonnquist, M. S. Zuber, and J. W. Dudley, Chairman.

Meeting was adjourned at 11:30 a.m.

OFFICERS AND COMMITTEE MEMBERSHIP FOR 1975

- Administrative Advisor -

F. W. Smith
Kansas State University

- Executive Committee -

J. J. Mock, Chairman	1973-1977
W. A. Compton, Past-Chairman	1972-1976
Jon L. Geadelmann	1974-1978
H. Z. Cross	1975-1979

- Subcommittees for 1975 -

1. Grouping of Lines for Breeding Purposes:
   L. F. Bauman, W. A. Russell, Chairman

2. Meeting Place:
   W. A. Russell, D. B. Shank, M. S. Zuber, P. L. Crane, Chairman

3. Uniform Tests of Inbred and Breeding Population Evaluations:
   D. C. Arny, W. D. Guthrie, A. L. Hooker, M. W. Johnson, J. H. Lonnquist, G. J. Musick, M. S. Zuber, W. R. Findley, Chairman

4. Uniform Tests in the 100-300 Maturity Group:
   J. L. Geadelmann, J. H. Lonnquist, H. Z. Cross, Chairman

5. Uniform Tests in the 400-600 Maturity Group:
   L. F. Bauman, E. C. Rossman, D. B. Shank, J. H. Lonnquist, Chairman

6. Uniform Tests in the 700-800 Maturity Group:
   P. L. Crane, W. A. Russell, W. R. Findley, W. A. Compton, Chairman

7. Uniform Tests for Opaque-2 Trials:
   J. W. Dudley, P. J. Loesch, M. S. Zuber, L. F. Bauman, Chairman

8. Genetic Vulnerability:
   W. A. Compton, H. Z. Cross, A. R. Hallauer, J. H. Lonnquist, M. S. Zuber
   J. W. Dudley, Chairman

ROSTER OF ATTENDANCE

University and ARS

Georgia

N. W. Widstrom	S. Grain Insects Res. Lab.	Tifton

Illinois

John W. Dudley	University of Illinois	Urbana
Art Hooker	University of Illinois	Urbana
R. J. Lambert	University of Illinois	Urbana
G. F. Sprague	University of Illinois	Urbana
Don White	University of Illinois	Urbana

Indiana

L. F. Bauman	Purdue University	W. Lafayette
P. L. Crane	Purdue University	W. Lafayette

Iowa

S. A. Eberhart	ARS - Iowa State University	Ames
A. R. Hallauer	ARS - Iowa State University	Ames
J. J. Mock	Iowa State University	Ames
W. A. Russell	Iowa State University	Ames

Kansas

F. W. Smith	Kansas State University	Manhattan
C. E. Wassom	Kansas State University	Manhattan

Kentucky

P. L. Cornelius	University of Kentucky	Lexington
C. G. Poneleit	University of Kentucky	Lexington

Minnesota

Jon L. Geadelmann	University of Minnesota	St. Paul

Missouri

Jack B. Beckett	ARS - University of Missouri	Columbia
M. S. Zuber	ARS - University of Missouri	Columbia

Nebraska

W. A. Compton	University of Nebraska	Lincoln

North Carolina

C. W. Stuber	ARS - North Carolina State U.	Raleigh

North Dakota

H. Z. Cross	North Dakota State University	Fargo

Ohio

E. J. Dollinger	Ohio Agr. Res. and Dev. Ctr.	Wooster
W. R. Findley	ARS - Ohio Agr. Res. and Dev. Ctr.	Wooster

Ontario

L. W. Kannenberg	University of Guelph	Guelph

Pennsylvania

M. W. Johnson	Penn. State University	Univ. Park

Virginia

C. F. Genter	Virginia Polytechnic Inst.	Blacksburg

Washington

J. M. Barnes	CSRS - USDA	Washington
P. H. Harvey	CSRS - USDA	Washington

Wisconsin

J. H. Lonnquist	University of Wisconsin	Madison

Industry

Illinois

Jim Bryant	Pfister Hybrid Corn Co.	El Paso
C. W. Crum	DeKalb Ag. Res.	DeKalb
Virgil Fergason	Bear Hybrid Corn Co.	Decatur
Bill Fiest	Customaize	Gomouce
Clarion Henderson	Ill. Found. Seeds, Inc.	Champaign
A. R. Hornbrook	Funk Seeds Int'l.	Bloomington
M. F. Lindsey	DeKalb Ag. Res.	DeKalb
J. H. Pfund	Del Monte Corp.	Rochelle
Larry Ruffel	Pfister Hybrid Corn Co.	El Paso
Frank Stark	Ill. Found. Seeds, Inc.	Champaign
Basil Tsotsis	DeKalb Ag. Res.	DeKalb
M. L. Vineyard	Moews Seed Co.	Granville
R. W. Williams	Columbia Seed Co.	Eldred
Ken Wrede	Funk Seeds Int'l	Bloomington

Iowa

R. L. Benge	Lynks Hybrids	Marshalltown
Lewis M. Camp	O's Gold	Parkersburg
Ron Cantrill	Cargill, Inc.	Grinnell
Gary Duncan	Acco Seed	Belmont
D. N. Duvick	Pioneer Hi-Bred Int'l. Inc.	Johnston
Don Eggerling	Holdens	Williamsburg
Everett Gerrish	Cargill, Inc.	Grinnell
LeRoy McCurdy	McCurdy Seed Co.	Fremont
Michael McNeill	Funk Seeds Int'l	Algona
Steve Noble	Pioneer Hi-Bred Int'. Inc.	Johnston
Jim Reynolds	Holdens	Williamsburg

Indiana

Dave Nanda	Trojan Seed Co.	Windfall
Jim Reid	Agr. Alumni Seed Imp.	Romney
A. J. Ullstrup	Farmer's Forage Res. Corp.	Lafayette

Minnesota

F. A. Loeffel	Northrup, King & Co.	Stanton
Adam Koble	Cargill, Inc.	St. Peter
Tom Mack	Trojan Seed Co.	Olivia
E. H. Rinke	Northrup, King & Co.	Minneapolis

Missouri

J. P. Thomas	MFA Seed Div.	Marshall

Nebraska

Ron Bell	NC+ Hybrids	Hastings
Stanley Jensen	Pioneer Hi-Bred Int'l Inc.	York